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The Distribution of the Benefits from Social Services in Indonesia, 1978-87

Dominique van de Walle

Changes in the patterns of use and in the incidence of subsidies in the health and education sectors since the late 1970s have been markedly pro-poor. In the late 1980s, public spending in education was generally well-targeted; health sector subsidies were not.

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This paper — a product of the Public Economics Division, Country Economics Department — is part of a larger effort in the department to understand and improve the relationship between public expenditures and poverty alleviation. It is a product of research project "The Analysis of Public Expenditures Incidence: Understanding and Characterizing Incidence at One Point in Time and Over Time" (RPO 676-42) funded by the Bank's Research Support Budget. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Ann Bhalla, room N10-055, extension 37699 (March 1992, 67 pages).

Indonesia has made great progress in the past 15 years in giving the poor more access to privately provided goods such as food, clothing, and housing. Van de Walle analyzes how much progress has been made in improving their access to two publicly provided social services, education and health care.

She finds that given existing patterns of use, education spending is more efficient at directly reaching the poor than is health spending. In the education sector, subsidies to primary and to a lesser extent lower secondary education are most likely to reach poorer households and raise their living standards. Education is a potentially important conduit for reaching relatively isolated rural households.

In the late 1980s, enrollments remained higher for urban than for rural areas, for male than for female children, and for the Outer Islands than for Java. But rates of improvement in enrollments during the last decade have been higher for rural, female, and poorer children than for their urban, male, and richer counterparts. The results indicate that rising living standards played a part in raising enrollment (especially for boys and in higher education). But other factors were substantially more important — notably public policy aimed at increasing the number of primary schools and teachers and at lowering the costs of having children attend elementary school. Education subsidies effectively reach the poor for two reasons: poor families have more children, and richer families self-select their children into private schools.

In the health sector, subsidies to basic primary health care provide the best avenue for reaching the poor, but they are far from ideal as an instrument for doing so. Although primary health care centers were more widely used in rural areas and by poorer groups in 1987 than they were in 1978, rich and poor now appear equally likely to seek treatment in these facilities. So, public subsidies to primary health care centers are not as pro-poor as is generally believed, although they are more so in urban than in rural areas. Making them more pro-poor would require price discrimination, and it is unclear how feasible that is in rural areas.

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The Distribution of the Benefits from Social Services in Indonesia, 1978-87

by
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1. Introduction

There is now a broad consensus that development is more than just income poverty alleviation, but that it also entails expanding access to crucial publicly provided social services such as basic education and health care.[1] Both privately provided and publicly provided goods matter for individual well-being. However, we know surprisingly little about the access of the poor to social services in developing countries.

With increasing concern about the role of the public sector in poverty alleviation, we need to look more closely at how the benefits of public spending are distributed. Many public services are publicly provided private goods and for them utilization is the key determinant of benefits derived. To get at this, one must clearly go beyond the aggregate social indicators such as school enrollment rates. With household level data sets we can see how utilization of social services varies with other aspects of living standards, such as consumption of private goods, and other variables which may be relevant, including for example, urban/rural location or region of residence. Another variable which may affect incidence is gender; for example: are girls "catching up" to boys in their rates of utilization of schools?

Access to and utilization of public services has been a long standing issue in many developing countries, and Indonesia is no exception. Here too, the dimensions along which one is concerned about utilization and access are between "poor" and "non poor", but also along characteristics such as whether one lives in a rural or urban area, in Java or the Outer Islands, and gender.

Indonesia has a well respected household consumption survey, the National Socio-Economic Survey (SUSENAS), which records information at the household level on whether, and at what level, children attend school, as well

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[1] This view has been most recently articulated in the World Bank's World Development Report 1990: Poverty, UNDP's 1990 Human Development Report, and in Hunger and Public Action by Dreze and Sen (1989).

as information on illnesses and whether and what kind of treatment was sought. A full SUSENAS survey is held once every three years. The present work is based on the 1978 and 1987 SUSENAS data sets.

It is also important to examine how utilization and the distribution of the benefits of public expenditures have changed over time. Indonesia has made great progress in alleviating income poverty during the 80s. This has been well documented in research (Ravallion and Huppi, 1991) and reported widely (World Bank, 1990 and 1991b). The evidence for the enormous progress Indonesia has achieved in this area appears hard to dispute.

But, there has been some concern that improvements in certain social indicators (such as infant mortality rates and life expectancy) haven't been as good as that in the poverty measures. In particular, there is concern about whether increases in the incomes of the poor have been commensurately matched by higher access to and utilization of health and education services (World Bank, 1991a). This could explain the relatively poor performance of social indicators during this period.

The period from the late 1970s through the 1980s in Indonesia is particularly interesting because it coincides first, with substantial declines in income poverty, and second, with a lot of emphasis by the government on primary health care and basic education through both pricing and provision (World Bank, 1991a and b; Yahya and Roesin, 1990). Fees for primary schooling had been completely abolished by 1978, and there were large investments and substantial new initiatives in the primary health care system in the late 70s including the integrated family planning and health post ("posyandu") system. Progress in these areas may have come under threat in the mid 80s when Indonesia sustained various external shocks which resulted in substantial deterioration in the external terms of trade and a subsequent macroeconomic adjustment program involving, among other things, cuts in public expenditures.

These are the stylized facts and key issues concerning Indonesia's social sectors in the 1980s. The paper asks: 1) How does the utilization of social services and the incidence of subsidies in the social sectors in 1987

vary across socio-economic groups defined by consumption, urban/rural and Java/Outer Islands area of residence, and gender; and 2) How have the policies and events of the last decade affected access and utilization of health and education services by the poorest groups in Indonesian society since the late 1970s? In addressing the second question, the paper also examines how much of the change in aggregate school enrollments can be attributed to shifts in the consumption distribution versus other changes such as those directly affected through government policy during the decade.

With a limited set of policy instruments available for alleviating poverty in developing countries, a longstanding question has been how effective social sector expenditures are in reaching the poor. The paper's findings will help shed some light on this key question in the case of Indonesia. Of special interest is how well different categories of social sector spending perform relative to each other (in this case health or education), and which of the intra-sector services and facilities can best be used to target in kind transfers to the poor.

Section 2 discusses the main methodological issues. This is followed in Sections 3 and 4 by an exploration of utilization of education and health care facilities across various groups in 1987 and how this has altered since 1978. Section 5 then looks at some possible explanations for utilization patterns by looking at the availability of facilities and the costs associated with their usage. Next, Section 6 examines the incidence of public expenditures in each sector, again starting with an analysis of the situation in 1987 and then turning to how it has changed since 1978. Finally, Section 7 offers some conclusions.

2. Methodological Issues

It is widely recognized that a household's standard of living depends on its command over both private goods and the benefits derived from publicly provided goods, such as education and health care. In assessing the

inter-household distribution of the benefits of public expenditures, one would ideally like to compare the distribution of living standards without government spending to the one which attains with publicly provided services.

Commonly used indicators of living standards, such as household per capita expenditures, which exclude the monetary value derived from publicly provided goods, only provide a rough approximation of the distribution that would be obtained prior to government intervention, however. There are several reasons for this. Household per capita expenditures on private goods are influenced by what governments spend on public services. Public services may displace private spending: for example, when outpatient care in a public hospital is provided at a subsidized rate, people will spend less on private doctors. Public services may also augment private spending: for example, subsidized schooling may encourage households (who might not otherwise send their children to a private school) to spend income on their children's clothing -- such as by providing sandals and a school uniform. Furthermore, the distribution of living standards is influenced by the outcomes (such as good health and education) of past public spending. These are very difficult effects to quantify. Here, I follow common practice in assuming that household consumption expenditures on privately supplied goods ("consumption" for short) are an adequate proxy for living standards in the absence of publicly provided goods. Thus, by looking at how the benefits of the latter are distributed across households ranked by consumption one can assess the impact of public provisioning on living standards.

The SUSENAS surveys are large national representative samples. The 1987 survey consists of about 55,000 households.[2] The SUSENAS is a consumption survey of considerable detail, which provides us with the best source of household level data for Indonesia. Although it also records incomes, there is some evidence that the total expenditure variable is the

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[2] The sampling frame is stratified so that it is necessary to expand each sampling point by the corresponding expansion factor in forming population estimates.

more reliable one.[3] In addition, there are the usual arguments that are made in favor of total expenditures providing a better reflection of current living standards than current incomes.[4] This paper also makes use of the 1986/87 Potensi Desa, a survey which collects information on village and community level facilities. It is useful for linking up the unit record data on utilization with information on the availability of facilities in the household's district of residence.

Throughout the paper, utilization incidence is measured as the proportion of an eligible subgroup who makes usage of a social service. This is, in some ways, a crude indicator. For one, aggregation is often necessary in surveying and this may disguise underlying quality differentials which may be of considerable importance. In addition, utilization need not fully reflect the actual benefits derived from a social service. But, despite its shortcomings, utilization incidence is clearly an important indicator of access and benefit from a social service.

So, the paper begins by characterizing the utilization of education and health facilities in Indonesia. Following this step, estimated government unit subsidies for the various facilities are attributed across households according to the utilization incidence, as a measure of the benefit from social sector spending. This is the methodology followed in most public expenditure incidence work of which perhaps the best known examples are the late 1970s World Bank studies by Meerman (1979) and Selowsky (1979) on Malaysia and Colombia respectively. In the literature, this type of exercise is usually referred to as benefit incidence which seeks to measure the distribution of consumption benefits.[5] Some of the "benefit" incidence

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[3] For a description of total household expenditures in the SUSENAS surveys and of the data generally, see van de Walle, 1988.

[4] Though, this may not be the case for all purposes. See the paper by Chaudhuri and Ravallion (1991) which examines the performance of a series of welfare indicators in assessing chronic poverty using panel data for rural India.

[5] In contrast, "expenditure" incidence studies examine the question of who receives government expenditures through, for example, being employed by the public sector (e.g. doctors, nurses, teachers).

approach's drawbacks are discussed in Section 6.

The analysis is carried out along two separate dimensions. At one level, an attempt is made to provide a broad profile of utilization and subsidies incidence for 1987. Numbers are presented by quantiles of per capita expenditures, most frequently deciles. At a second level, the paper attempts to characterize the changes which have occurred in the incidence picture since the late 1970s. In the early 1980s work was done in the World Bank by Oey Meesook and Dov Chernikovsky on the 1978 SUSENAS (Meesook, 1984; Chernikovsky and Meesook, 1985 and 1986). Among other questions, they examined the incidence of public expenditures on education and health. This provides us with a benchmark study for making a comparison of the distribution of access and utilization across income groups between the two dates.

In 1978, the full survey covered 24,000 households interviewed over a series of 4 subrounds. The work by Meesook (1984), and Chernikovsky and Meesook (1985 and 1986), is based on the May subround which covers 6,000 households. In 1987, the entire survey comprising 55,000 households was held during January. The timing of the surveys shouldn't make much difference to the kinds of variables this paper will be comparing across the two dates.[6] The 1987 analysis is based on a much larger sample.[7]

Overall, survey methodologies and questionnaires are generally comparable across the two surveys. Any dissimilarities are discussed in the text when they arise. The problems encountered in this kind of replication exercise are more to do with the limitations that are imposed by which questions were explored as well as reported for the earlier data and which were not. The method of conveying results can also be confining. For example, the 1978 incidence figures are mostly given in the form of shares. Without knowledge of the underlying magnitudes, manipulation of the data is

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[6] It could make a difference to reported illnesses if these are correlated with the seasons, for example.

[7] In their work on the 1978 data set, Meesook and Chernikovsky also used the expansion factors.

impossible. Of course, going back to the original data presents its own kind of problems.

For the comparison over time, households are classified into expenditure per capita quantiles (poorest 40%, middle 30% (40%), top 30% (20%) to match the earlier groupings) and by urban/rural and Java/Outer Islands area of residence. Utilization is recorded, aggregated across each subgroup, and the relevant shares compared to the 1978 outcomes. The paper first turns to a discussion of utilization incidence. In the next section, the utilization of education services are examined, while in the following the health facilities situation is explored.

3. Utilization of Education Services

The Picture in 1987

The 1987 SUSENAS indicates an overall primary school attendance rate -- the proportion of children aged 7 to 12 attending school -- of 93 percent. For children aged 13 to 15 (ages corresponding to the junior secondary schooling level) the rate is 75 percent. The drop out rate is then quite rapid -- to 49 percent in the 16 to 18 age bracket (senior secondary school), and 12 percent in the 19 to 25 group (university) (Table 1).[8] However, these aggregates hide variation across consumption groups and regions. Table 1 presents the attendance rates stratified by subgroups defined by region of residence, schooling level, and by quantiles of per capita expenditures.

Proportions in rural areas are consistently lower than those in urban areas. Incidence in the rural Outer Islands tends to exceed that of rural Java. This is also true for the urban Outer Islands at levels beyond

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[8] There are significant numbers of over and underage students at each schooling level. Unfortunately, it was not possible to determine the net enrollment rates, defined as the proportion of the relevant school age group going to the appropriate schooling level for that age, from the SUSENAS data for 1987. The data given here refers to the proportion of each age group enrolled at any level of schooling.

primary schooling. Both the urban/rural and the Outer Islands/Java differentials no doubt reflect the correlated differences in average incomes. Finally, proportions of school going kids increase the higher the per capita expenditure quantile. The one exception is for the Java urban middle 40 percent who do better than the top 20 percent at the junior and senior secondary age levels. However, the difference in attendance rates between different consumption groups becomes far more pronounced for age groups 16 to 18 and 19 to 25 than at the 13 to 15 age level. At the primary school level, the disparity is small.

Changes in Incidence Between 1978 and 1987

Table 2 presents the proportions of all children in a series of subgroups defined by age, gender, and location who were going to school in 1978 and 1987. For example, 73 percent of all Indonesian female children aged 13-15 were at school in 1987. The 1978 results which are taken from Meesook (1984) are all in parentheses to make them easier to distinguish from the 1987 numbers.

In 1978, across all subgroups, a higher proportion of boys than girls attended school. Utilization was positively correlated with household per capita expenditures (as can be seen in the bottom panels) and the higher the level of education, the higher the differential between high and low expenditure groups. University education, for example, was almost exclusively received by better off urban households. Indeed, urban households everywhere tended to benefit more from education facilities than rural ones (at levels beyond primary school), as did households in the Outer Islands in comparison to Javanese ones.

Turning now to the 1987 results, there are 3 main points to note.

i) Level improvements are apparent at all ages and for all regions, gender, and expenditure groups. In other words, for each subgroup, the proportions of school going children have increased, and in some cases, quite dramatically.

ii) The disparities have fallen consistently between male/female, urban/rural, Java/Outer Islands and low/high expenditure groups. For all these subgroups there has been convergence so that the disparities are less pronounced than they were in the earlier period.

iii) However, many of the earlier qualitative conclusions continue to hold: Utilization is greater for males than for females, in urban than in rural areas, in the Outer Islands than in Java and for higher than for lower expenditure groups.

In summary, the 1987 data indicate level improvements generally, convergence across different subgroups, but essentially the same patterns suggested by the 1978 data. At the regional level, urban enrollments continue to be higher than rural ones and the differential continues to be larger the higher the education level. Although Java and the Outer Islands have equalized at the primary school age level, the Outer Islands continue to do better at higher education levels than Java. Looking for a moment at the gender differentials, this is where convergence is perhaps most striking. In most cases the rate of improvement has been higher for girls than for boys. In primary school, female proportions are even slightly higher for some groups. At the 13 to 15 and 16 to 18 age groups in the lower panel (set out by expenditure levels), the rates of improvement for girls are quite astonishing for all incomes.

The importance of consumption as a correlate of school enrollment is still clearly evident in the 1987 data. Concentrating again on the two middle age groups in the lower panel, note the striking correlation with consumption expenditure. Again, the qualitative pattern has not changed between the survey dates, yet the disparities between expenditure groups have certainly narrowed. At the upper secondary age (16 to 18) level we are still talking about huge disparities. Less than one quarter of low expenditure group females in this age bracket are in school compared to nearly two thirds for the upper 30 percent group in 1987. Yet, in 1978 it was less than 1 in 10 for the former group.

Thus, the same basic patterns of differentiation in education utilization incidence found in 1978 are still evident in 1987, but it also seems clear that income poverty alleviation and the governments' efforts in promoting basic education have brought benefits to the poor. The following discussion will attempt to throw light on the relative importance of each of these two factors.

Explaining Changes in Incidence

One of the problems with the kind of intertemporal incidence comparisons by quantile typified by Table 2 is that we are not comparing like with like since any given quantile is better off in 1987 than it was in 1978. Thus, observed improvements may be entirely due to higher incomes in the latter period. Table 3 gets around this problem by computing proportions of school going male and female kids belonging to equivalent per capita expenditure groups in both years. The 1978 numbers are taken from Table 3 in Chernikovsky and Meesook (1985). The class intervals were updated to January 1987 prices using the 17 cities CPI and linear interpolation was used to calculate comparable figures for identical expenditure groups. Table 3 shows clear improvements at all education levels holding consumption constant. The catching up by female students at all education and expenditure levels is, once again, particularly striking. These results suggest that education incidence improvements are not just a consequence of growth. At a constant real per capita expenditure level, something else has happened. Two obvious possible factors include policy initiatives and changing tastes for education.

The change in the aggregate enrollment rate can be decomposed into that due to changes in the distribution of consumption (level changes as well as changes in relative inequality) holding constant initial enrollments, and that due to changes in enrollments at each consumption level holding constant the initial distribution of consumption. Thus:

$$E_{87} - E_{78} = \underbrace{\Sigma e_{i78}(n_{i87} - n_{i78})}_{\text{Component due to changing consumption distribution}} + \underbrace{\Sigma n_{i78}(e_{i87} - e_{i78})}_{\text{Component due to changing enrollments}} + \underbrace{\Sigma(e_{i78} - e_{i78})(n_{i87} - n_{i78})}_{\text{Interaction effect}}$$

where e_{it} stands for the enrollment rate at date t (t= 1978, 1987) for consumption group i= 1,...,N and E_t denotes the mean over all consumption groups. The share of the population in each consumption group is given by n_{it}.[9] The last term in the equation reflects the interaction effect due to covariance between the two other factors. Results from these calculations are given in Table 4.

It is of interest to note that changes other than those brought on by shifts in the 1978 consumption distribution, generally account for the most significant influence on overall enrollment increases. These effects are particularly pronounced for female enrollments where they are highest for the lower secondary school age group. This strongly suggests that tastes for educating female children have substantially altered and independently from the household's economic situation. Government policy is likely to have been instrumental in these changes. General government initiatives in the education sector during this period included the waiving of primary school registration fees, expeditious investments in new primary teacher training schools, increases in teachers' salaries, and the continuation of a school construction and rehabilitation drive begun in 1973 under the INPRES S.D. program (World Bank, 1991b). Although gender specific initiatives aimed at female students do not appear to have been part of its approach, the government has been a vocal advocate of equal opportunities in education during this period.

Distributional effects become more important the higher the level of education. They also tend to be of more consequence for male than for

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[9] The 1978 population frequency distribution is taken from Rao, 1984.

female enrollments. The third factor is more difficult to interpret. Essentially, decreasing density at the lower consumption levels (falling poverty) coupled with increasing enrollments associated with policies and/or taste changes results in a negative number for the interaction effect. Some of these negative correlations are quite high at higher education levels.

4. Utilization of Health Services

The Picture in 1987

According to the 1987 SUSENAS, 65 percent of all those who reported being ill during the preceding week also reported seeking treatment outside the family. The numbers imply that on average Indonesians each visit some kind of health care facility 2.2 times a year.[10] Of all treatments sought outside the family in 1987, the greatest numbers consulted a primary health center (43%), followed by paramedics (22%), private doctors (17%), hospitals (8%), traditional healers (6%), and lastly, polyclinics (4.5%). The 1978 SUSENAS implied that 23 percent of visits were to public health centers, 19 percent to hospitals and 14 percent to private doctors (Meesook, 1984).

For a variety of reasons, including both the availability and the demand for services, households from different expenditure groups are often found to exhibit different health facilities utilization behavior. Table 5a provides evidence, based on the 1987 SUSENAS survey, of how individuals ranked into deciles of per capita household expenditures (with decile 1 being the poorest and 10 the wealthiest) responded to a health complaint. This information is presented for the all Indonesia, all urban, and all rural distributions. It is clear that area of residence also has bearing on health utilization characteristics.

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[10] This average is extremely close to the 2.1 times reported for 1978 (Meesook, 1984). This is a surprising result as all other evidence indicates increased usage of health services. For both survey dates, these figures are based on the weekly recall variable rather than the 3 monthly recall. (For the 1987 data, the latter implies only .4 visits per person yearly.) The number of total illnesses and hence, total visits to health facilities, may be influenced by the different times of the year during which the surveys were held.

A few general observations can be made. The percentage of reported illnesses treated by private doctors and hospitals is an increasing function of per capita expenditures, ranging from just under 2 percent for the poorest 20 percent in rural areas to 47 percent for the richest 10 percent in urban areas. Visits to private doctors exceeds those to hospitals for all groups, and also increases much more steeply across household expenditure quantiles. Both options are more common in urban than in rural areas. Conversely, the share of individuals who either took no medication, or were treated exclusively by themselves or their families, falls across the deciles: 46 percent of total reported illnesses for decile 1 versus 23 percent for decile 10. The disparity is even more pronounced for those who did not seek any medication; 12 percent did not do so among the poorest decile in rural areas versus 0.3 percent for the richest urban decile.

Primary health centers as a recourse for treatment, drop systematically from the sixth decile on in urban areas, but are pretty steady across rural deciles, ranging from around 27 to 32 percent of total illnesses. Polyclinic usage is consistently low and appears to be unrelated to household living standards. Use of paramedics declines with expenditures in urban areas as well as at the all Indonesia level. In rural areas, in contrast, their use is maintained around 15 to 17 percent across the quantiles. The percentage of illnesses attended to by traditional healers is generally low, and lowest for urban individuals. However, it does not seem to be significantly influenced by household expenditure levels, though this is less so in urban areas.

Table 5a also tells us what proportion of those reporting an illness received inpatient care and where. Again, the evidence suggests that the incidence of inpatient care is correlated with living standards. A larger proportion of the sick in urban areas went on to be treated as inpatients than in rural areas. Across deciles, a majority of these were admitted to hospitals. In rural areas, primary health centers and hospitals share the inpatient care burden. In addition, the homes of paramedics are a popular option for the bottom deciles and less so for the middle ones. Lastly,

traditional healers also play a role in rural areas.

Table 5b presents additional detail from the 1987 SUSENAS on annual absolute utilization rates per person of modern health providers. This tells us how yearly per capita, total as well as provider specific, visits differ across consumption deciles and sectors. It is clear from Table 5b that the rate at which morbidity is treated varies across deciles and rises with consumption. The latter effect is more pronounced in rural areas where individuals in decile 1 visit one of the modern facilities an average of 1.4 times yearly, while individuals in the tenth decile do so 3 times. In urban Indonesia the variability is lower, ranging from 1.8 to 2.2 visits per person per year.

Changes in Incidence Between 1978 and 1987

Table 6 presents statistics on individuals reporting illnesses and where they were treated as recorded in both the 1978 and 1987 surveys. The table provides insights into how the kind of treatment different subgroups seek when ill has altered during the decade under review. Each number refers to the proportion of all those reporting ill in a certain subgroup (such as "poorest 40 percent in urban Java"), who seek treatment at each of the options. Each column thus adds up to 100 percent. For example, of all those reporting ill in urban Java in the lower 40% of the per capita expenditure distribution, 31.8 percent did not seek treatment outside the home in 1987.

Looking at each treatment option separately, the following observations can be made.

i) <u>Self, family or no treatment</u>: At both dates, the lowest income groups are less likely than others to seek treatment outside the home. Indeed, self, family or no treatment is consistently their most common course of action. But the use of facilities outside the home by the poorest 40 percent has clearly increased since 1978. For example, for the lower expenditure group in urban Java, self, family, or no treatment declined from 58 to 32 percent. Urban residents are also, generally, more likely to obtain

outside treatment than rural residents at any given consumption level.

ii) Primary health centers: The 1978 results indicate that, for rural areas, primary health centers were predominantly used by middle expenditure households. The poor used these facilities relatively little (many going without treatment), while the rich tended to use other facilities more intensively (such as private doctors). In urban areas, the pattern differs between Java, where use is also the highest for the middle expenditure group (22%), and the Outer Islands, where the poorest are the most common users (27%) and the middle the least common (10%). By 1987, we see that use of primary health centers has increased for most subgroups. There are two exceptions. It has dropped for the wealthiest groups in the urban areas of both Java and the Outer Islands; and likewise for the middle expenditure group in rural areas, whose use surpassed those of others in 1978. In the urban areas of both Java and the Outer Islands, the use of primary health centers declines with consumption expenditures though only very mildly between the bottom and middle groups. In marked contrast, usage of rural primary health centers appears relatively equal across all expenditure groups. The upper 20% are just as likely (if not slightly more likely) to use them as the lower 40%. Based on these data for 1987, and those featured in Tables 5a and b, one could not conclude now that subsidizing primary health care in rural areas is inherently pro-poor; the benefits will be quite uniformly distributed. However, the benefits of subsidized primary health care will tend to be more pro-poor in urban areas.

iii) Private Doctors: Unlike public health centers, visits to doctors increase markedly with expenditure levels in both rural and urban areas. Use is also higher in urban areas at any consumption level. The rate of use of private doctors has augmented for 5 out of 6 subgroups in the Outer Islands but shows a more mixed picture in Java having increased or decreased for half of all subgroups there. This may reflect the relatively lower availability of cheaper yet acceptable alternatives in the Outer Islands.

iv) Hospitals: Hospital treatment also increases with urban residence

and household per capita expenditures. The rich seem to use hospitals less in rural and more in urban areas than in 1978, while the other groups have mostly increased their rate of use.

v) Private clinics: In this case, the categories listed in the two surveys do not correspond exactly. The 1978 SUSENAS asked about maternity hospitals and clinics, while the 1987 survey lists polyclinics. Both tend to predominantly be private facilities, often offering better quality than the available public facilities and charging more for it. Therefore, they have been lumped together for the sake of comparison. Proportions of individuals using these facilities in 1987 tend to be highest for the middle 40% expenditure quantile. The rural Outer Islands provides the exception. Here both the lower and upper quantiles exhibit higher usage, with the latter outdoing the former. By contrast, in 1978, there was very uneven usage of polyclinics and a pattern is difficult to discern. Since then, use has generally gone down in the Outer Islands and up in Java.

vi) Traditional healers: The importance of traditional healers has declined almost consistently over the decade, though this form of treatment retains many followers in the rural areas of the Outer Islands. But, there is on the whole much less differentiation along expenditure classes in the use of traditional healers than was evidenced in 1978. It seems that where health centers exist, the local poor use them in preference to traditional medical practitioners. It should be noted that traditional healers encompasses various types of practitioners of "traditional" medicine as opposed to "modern" medicine. The SUSENAS include bone setters, but probably exclude traditional midwives. There appears to be declining demand for some among them. For example, from casual observation, "dukuns" (a broad category of traditional healer) who are trained by the government, seem to be in steady decline, whereas bone setters maintain high popularity in many areas of Indonesia. There is at least anecdotal evidence that some doctors refer

patients to them."

Underlying the changes in utilization evidenced in Table 6, are the income growth we have discussed but also the concomitant large expansion in the overall number of health facilities and personnel during this period. The results are clearly showing that the primary health care movement has brought significant changes in rural Indonesia in terms of the treatment of illnesses.

5. Access to Education and Health Care: Availability and Costs

Utilization incidence patterns are the outcome of several interlinking factors. At the household level, the key determinant is probably the full cost of using the facility, comprising the price charged, transport costs, forgone income, and any disutility incurred. Most of these factors can be linked to broad structural issues, including the aggregate resource levels spent on the sector, allocation within the sector, the degree of private financing, pricing policies, and the organization of sector inputs. This paper approaches the issue instead from the perspective of household level decisions. These will be determined in great part by the supply and demand for services, which are themselves directly linked to the country's broad structural policies. So, before turning to household level factors, it is instructive to review the general conclusions which two survey studies of education and health systems for different Asian countries in the mid 1980s, have drawn with respect to Indonesia (Tan and Mingat, 1991; Griffin, 1990).

Indonesia's public spending on education, at 3.7 percent of GNP and 15 percent of total public spending, is slightly above the Asian mean. However, Indonesia allocates a larger share of expenditures to basic education and is generally more favorable to the lower levels of education (primary and

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" In July 1991, World Bank staff were told by hospital and administrative doctors in both Bali and East Java that there exists cooperation between bone setters and modern medicine with referrals back and forth. One district health officer related the story of a patient whose leg, which would have been amputated by them, was saved by the bone setter.

secondary) through its financing policies, concentration of resources, and enrollment coverage, relative to other Asian countries (Tan and Mingat, 1991).

In the health sector, a very different picture is painted (Griffin, 1990 and World Bank, 1991a). Overall public spending is very low. It has risen considerably since 1975 (from about .2 percent of GNP) yet, in 1985, it still remained under 1 percent of GNP, below the Asian mean of 1.3 percent of GNP. In addition, there is evidence that government per capita spending on health declined by about 25 percent between 1982/83 and 1987/88, though it has increased again since (MOH, 1991b) Private spending accounts for over half of total expenditures on health. At least half of total public outlays are disbursed to hospitals. Recently, spending on communicable disease control has been reduced, while curative care services have been buttressed. Griffin also finds that the distribution of central government health resources to the provinces is inversely correlated with need as revealed by provincial per capita incomes and infant mortality rates.

Against this background, the paper now examines some of the existing evidence concerning the availability of social services and the costs of participation to households with different characteristics.

Access to Education Facilities

Tables 7 and 8 give us some idea of how the availability of education facilities differentiated by whether they are public (Table 7) or private (Table 8), varies with household per capita expenditure levels and region of residence. The presented data is derived by linking the household level data of the 1987 SUSENAS survey with the 1986/87 Potensi Desa, a survey of village level facilities.[12] The numbers in the tables indicate the percent of villages in each individual's district of residence which has the specified facility, averaged over all individuals in the decile. This is a useful indicator of access to facilities. Unfortunately, as these data are

[12] Only the district of residence can be matched between the SUSENAS and Potensi Desa surveys.

unavailable for the earlier date, we are unable to compare access to education (or health) facilities for the SUSENAS sample between 1978 and 1987.

Note that more of all facilities are accessible in urban areas, both private and public. Public elementary schools provide the one exception. At both the public and private levels, the pattern of availability of schools is discernibly correlated with expenditure levels in urban Indonesia. Thus, poor children, on average, must travel further to get to school. In rural areas little correlation of school availability with expenditures is indicated. Only at the elementary level do public schools appear to be widely accessible. Around 93 percent of all villages have a government run primary school. The evidence on the availability of both public and private facilities at higher levels, along with the realities of low population densities in many areas outside Java, and district areas which range from an average of 326 sq km in Nusa Tenggara to 2921 sq km in Maluku and Irian Jaya, imply that distances to schools are an important handicap for many students. It has been argued that distance to schools is also a greater constraint for female than male students (Oey-Gardiner, 1991). It would be interesting to know how much of the constraint on school attendances arises from a lack of student places and how much from travel costs associated with long distances to schools. Meanwhile, the data does suggest that school availability is still a constraint to higher school enrollments at the post primary level as has been argued elsewhere (Oey-Gardiner, 1991; World Bank, 1991b).

Access to Health Facilities

Table 9 presents data on health facilities similar to that given in Tables 7 and 8 for education facilities. A rather similar pattern emerges from this table. Urban areas, again, tend to have more of all services (except traditional midwives) than rural regions. Availability also tends to be more correlated with consumption levels in urban Indonesia. In rural areas there is little correlation between access and consumption. This pattern is quite consistent across facilities. Family planning posts and traditional

midwives are far and away the most frequent facilities across Indonesia. The former are present in some 79 percent of villages across Indonesia, and the latter in nearly 90 percent. It is a bit alarming to note how few primary health centers (including sub-centers), general practitioners or resident doctors there are in rural districts according to this data. As mentioned earlier, districts outside Java tend to be large. The average district size for all of Indonesia is 541 sq km. In Kalimantan Timur and Irian Jaya it is 2978 and 3587 sq km respectively. Hence, the figures in Table 9 imply that considerable travel time and costs are involved in seeking medical care in many rural areas of Indonesia outside Java. One immediate consequence is likely to be the forsaking of preventive care by individuals living in these regions. Many observers of medical facilities in Indonesia have remarked on the low utilization rates of hospitals and health centers (for example, see World Bank, 1991a). Distances appear to be an important part of the explanation. This also suggests that solutions should be sought in the realm of increased mobile health units and augmented capacity and role for village outreach programs such as the posyandu.

Household Expenditures on Education

Table 10 presents monthly per capita spending by the household on education related goods and services as reported in the 1987 SUSENAS consumption survey. In the Indonesian system, it is generally true that ability to spend privately enhances the benefits from public provision. This is because the latter does not provide for essential teaching and learning aids. It should be noted that Table 10 does not give an exhaustive list of the costs of education. The SUSENAS omits to ask separately about spending on uniforms which are mandatory in Indonesian schools. But, the more substantial costs are likely to be those associated with travel to schools and the opportunity costs of the student's time.

Not unexpectedly, per capita expenditures are generally higher for urban than for rural individuals. They also tend to increase with per capita

expenditure levels. By far the most any group pays is for school fees and PTA (Badan Pembantu Penyelenggaraan Pendidikan or BP3) dues. And the urban rural differential here is high. The expenditure jump between the ninth and tenth deciles is always the largest and often considerable. The elasticities of expenditure on each category of goods and services with respect to total per capita consumption expenditures have been computed using an OLS regression against the decile means, with both variables in logs. They are recorded in the second to last column (with t-ratios on the estimated elasticities in the last column).

With the exception of stationary, spending on all categories rises more than proportionately with total expenditure level as evidenced by elasticities greater than one. The latter will only equal the quantity elasticities with respect to total expenditures if prices for the goods do not vary by expenditure group. For example, if the government is able to subsidize consumption of a good by poorer school going kids there will be a bias in the elasticity for that category. However, it is doubtful how well the government is able to target the poor by way of any of these categories.

There may be other reasons for which prices vary. For example, other school contributions, school fees and PTA dues, and construction contributions are usually set by teachers and parents and can, in principle, be deferred for children from poorer households. However, there is evidence that parents consider these to be compulsory (World Bank, 1991b). It seems reasonable to assume that non payment is strongly associated with stigma in the community which in turn, effectively constrains parents' choice to removal of the child from school or payment of the various contributions. Thus, it can be argued that the elasticities in Table 10 are likely to be reasonably indicative of the underlying expenditure elasticities of demand.

Table 10 gives an indication of the extent of quality differentials which are likely to exist between schools and to be correlated with household living standards. The Indonesian education system largely depends on parents' contributions for all non salary or basic infrastructure

expenses. School related supplies such as uniforms, textbooks, and stationary are the sole responsibility of the household. In addition, each school has its parent-teacher association who decides on the PTA dues which a household is to contribute for each child. Although official fees have been abolished at the primary level, parent contributions are often necessary to make up for inadequate funding in schools. These contributions matter greatly to the quality of schooling, as determined by the availability of textbooks, chalk, teachers' manuals, and other essential teaching aids. If households with similar living standards tend to congregate into rich and poor neighborhoods, then a school's endowment will differ accordingly. Hence, quality will be positively correlated with the general wealth of the population serviced by the school. This will tend to perpetuate inequality across the generations, even when all children attend school. The amounts in Table 10 and how they vary across deciles suggests a great deal of inequality in quality across schools markedly favoring the well-off relatively to the poor.[13]

Household Expenditures on Health Care

Table 11 presents monthly per capita expenditures on health according to deciles of total consumption per capita. Absolute magnitudes are low. The bottom decile spends most on non doctor prescribed drugs, paramedics and in urban areas only, private doctors. In contrast, the highest health expenditure components for the top decile are doctor prescribed medicines and private doctors. Generally, though not without exception, the amounts increase with overall living standards. And they also increase more than proportionately with consumption, in that, the elasticity of expenditures in each category with respect to total consumption expenditures tends to exceed one. The expenditure elasticities are recorded in the second to last column

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[13] The positive correlation between education spending and consumption could also be partly due to lifecycle effects on household expenditures. Older households will tend to have higher earnings profiles and as well as older children. The latter will be attending higher levels of education for which costs are generally higher. I am grateful to Beth King for pointing this out to me.

(the t-ratios on these estimates follow in parentheses). These were derived by an ordinary least squares regression against decile means in logs.[14]

The expenditure elasticities of different types of health care give an indication of where subsidies will be more pro-poor. If modern health care is a luxury good, then subsidies which are undifferentiated (either by category of care or recipient) will certainly not be pro-poor. However, if it is feasible to differentiate by category of care, one may find appropriate services to subsidize. For example, based on these results, paramedics which exhibit low (yet generally significant) expenditure elasticities, appear to provide one option. Or alternatively, if it is possible to price discriminate by income group then clearly, there may be possibilities for subsidizing health care and targeting the poor.

However, as argued in the case of education above, one should be careful in interpreting these elasticities. They will not, in general, equal the expenditure elasticity of quantity consumed since prices may vary with total expenditure. For example, if the underlying price is not constant and positively correlated with expenditure levels, the methodology will overestimate the elasticity of quantity consumed with respect to total expenditure.

Do the prices vary? The poor may be getting some health goods and services for free while the rich pay higher prices. But, again, the key question is how well can the government price discriminate in these categories. One way in which this may occur is through the "surat kataranaan lurah", a sort of affidavit of indigence which poor individuals who are sick can obtain from the village head. It exempts the recipient from paying the fees associated with one medical treatment and the usual three days worth of drugs received with a treatment. In Table 11 this could apply to expenditures on inpatient care, for example. However, it is not clear how commonly the

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[14] The log of specific health expenditure components were regressed against the log of mean per capita expenditure level for each decile mean and region. More complicated regressions were tried but the elasticities all turned out to be very similar.

surat is issued. Anecdotal evidence suggests that it is used very little. As a method of price discrimination, the surat may be promising but more needs to be known about its operation in practice and what the costs are to participants. For many categories including Drugs prescribed by the Doctor, Doctors, and Birth Control, it seems very unlikely that the poor are paying lower prices. Rather, it seems fair to assume that these are indeed luxury goods.

6. Who Benefits from Public Expenditures in the Education and Health Sectors?

In this section, an estimate is made of the distribution of the benefits of public expenditures in the education and health sectors. Changes in the distribution of benefits since 1978 are also examined.

Following common methodology, program expenditures are treated as proxies for aggregate benefits, and benefits then attributed to households based on household level utilization information from the unit record data. This approach to incidence analysis became popular in the late 70s, spurred in part by increased availability and improvements in household level surveys. The best known applications for developing countries are the studies of Malaysia by Meerman (1979) and of Colombia by Selowsky (1979).[15] It is also the approach followed by Meesook (1984). Replication of the methodology thus allows the paper to make a comparison of the distribution of access and utilization across income groups over the two dates.

It is notoriously difficult to measure the benefits from publicly provided goods and services. And indeed, much of the standard analysis of benefit incidence is crude and it is clear that it could be improved upon. The problems associated with it are well documented (for example, see Selden and Wasylenko, 1991) and will not be repeated here. However, it may be useful

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[15] For a detailed review of the past and present state of benefit incidence analysis see Selden and Wasylenko, 1991.

to point out what are likely to be some of the more important concerns, in the present context. A key question has always been how well the methodology approximates the distribution of the value of the benefits. In the health sector, "need" as measured by reported illness, is often juxtaposed with treatments received to serve as the underlying yardstick against which to judge equity of access and intrinsic value of benefits. Yet, basing medical need on whether the household reports a member being sick in the prior week seems to be rather unsatisfactory. This tells us nothing about the severity of the illness. It might not be unreasonable to assume that poor households tend to ignore illnesses (out of necessity) more than rich ones. Chernikovsky and Meesook (1986) also speculate that access to health services influences the reporting of illness in that the likelihood of being treated encourages recognition of a poor health condition. In either case we have a biased assessment of the degree of need which, in turn, impairs our ability to assess how equitable the distribution of health expenditures is. The probable direction of the bias in recall will be to underestimate the need of the poor. In some cases there may be other indicators we can use. For example, Chernikovsky and Meesook look specifically at pregnant women. Within this relatively homogeneous subgroup, they look at the determinants of whether care was received and what kind. Unfortunately, the 1987 SUSENAS does not contain detailed data on pregnancies.

Another weakness of the methodology relates to the fact that all facilities dispensing a certain type of service (e.g. primary schools) are treated identically (e.g. urban and rural primary schools). Yet, by all accounts, differential service quality is an important characteristic of the provision of health and education services in Indonesia. This is relevant in allocating government subsidies in that the per unit cost of a low quality service will generally not equal that of a high quality one. (It may in fact be higher if, for example, low quality is the result of the costs of reaching the area in which the service is located. But, this may be the result of low public expenditures in the past and introduces the problems of what time

horizon to use and of how to treat the incidence of capital investment expenditures.) In any case, the benefits will certainly not be equal. The methodology will tend to underestimate the disparities in how benefits are distributed. Policy implications will be affected as well. How to account for quality differentials when distributing benefits is an important area for further research. Finally, the methodology does not allow for the private costs of participation. These are likely to be correlated with living standards and so, could be important in assessing results and the implications of incidence estimates.

Implementation of the approach first requires calculation of the per unit costs for the various education and public health facilities. In education, government subsidies are made at the primary, secondary (lower and upper), and tertiary levels. In the health sector, the government spends on health care through hospitals and the primary health care system (health centers (puskesmas), subcenters (puskesmas pembantu), and the integrated health posts (posyandus)), as well as on training and communicable disease control. The study focuses on the apportionment of the benefits of expenditures on hospitals and public health centers for which utilization is identifiable from the household level data.

In estimating unit costs, this study (like the majority of studies of its kind) concentrates on variable and semi-variable or "recurrent" costs. It does not, therefore account for the costs of capital used in providing health or education services. This may lead to biases in the qualitative results. In his work on Malaysia, Meerman (1979) found that failure to account for public capital leads to serious underestimation of the total community resources used to provide medical care and education services. For example, accounting for imputed capital service cost per inpatient day for the Malaysia data increased total costs per inpatient day by 78 percent. In at least two cases, capital costs can be expected to be important to policy decisions. When public services require different levels of capital stock and are used by different income groups, there will be distributional

implications. Higher level services such as hospitals and universities necessitate more costly capital inputs and are likely to be used relatively more by the wealthier groups. Thus, it can be expected that ignoring capital will tend to result in an underestimation of the inequality in the distribution of public expenditures. Second, from a policy point of view when we are interested in allocating expenditures between sectors in the most cost effective way, total public costs will sometimes be more relevant than recurrent expenditures on their own. It will be important to keep these points in mind when drawing conclusions from the incidence estimates.

The analysis of health and education costs and budgets in Indonesia is not straightforward for several reasons. There are numerous budgetary sources for the two sectors, including at the central, province, and district government levels. In addition, there are numerous ministries besides the major ones (the Ministry of Health and the Ministry of Education and Culture) as well as foreign funds, contributing to overall expenditure levels. No central accounting system exists to keep track of the total amounts being spent and the composition of expenditures is not clear from outlay accounting classifications. Calculating total recurrent spending, let alone the per visit subsidies, is therefore a complex task.[16] With these difficulties in mind, the paper tries to follow the methodology detailed in Meesook's study for Indonesia in the late 1970s as closely as the available data permit.

Government Subsidies for Education

In the education sector, subsidy levels differ at each schooling tier. At the primary level, where no school fees are charged, recurrent expenditures divided by the total number of public students in grades one to

[16] The complexities involved in calculating budgets in Indonesia are further discussed in World Bank 1991a.

six provide a rough estimate of the per unit government subsidy.[17] At higher levels fees paid by students must be subtracted from recurrent expenditures.[18] The total numbers of students attending each schooling category are derived directly from the SUSENAS data tapes. But, not all students go to public schools. The proportion of all students who are public students (students attending schools run by the MOEC and other government ministries) for 1986/87 is derived from MOEC and BPS statistics. How these compare to 1978 percentages (quoted in Meesook, 1984) can be seen in Table 12.

The relative importance of the private sector has declined for the lower two education levels and increased for the two higher, particularly the tertiary, levels. Unfortunately, the SUSENAS utilization data does not specify which type of facility children attend. This poses a problem in distributing public subsidies across households. The paper follows Meesook, 1984, in assuming that 100 percent of the students in the lowest 40 percent of the per capita expenditure distribution go to public schools, while the rest of the public places are distributed evenly between the remaining expenditure groups.[19]

All the amounts relevant to calculating per student subsidies and their sources are presented in Table 13. The methodology described above is essentially identical to that detailed in Meesook (1984). In the next section, the paper combines the per student subsidy estimates with the

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[17] Recurrent expenditures denote expenditures from both the development and routine budgets which are devoted to operations and maintenance of schools.

[18] In principle, student fees are meant to cover the non-salary operational needs of schools.

[19] Percentages assumed to be in public school are as follows:

	Primary	Junior Secondary	Senior Secondary	University
Lower 40%	100	100	100	100
Middle 30%	89.0909	38.70968	27.8619	30.9524
Upper 30%	89.0909	38.70968	27.8619	30.9524
Total	94	62	47	42

distribution of household level utilization of education facilities detailed in Section 3. For each child attending public school, households are allocated the corresponding subsidy amount. These are then aggregated over schooling categories and household expenditure groups.

The Incidence of Education Subsidies in 1987

An estimate of the incidence of public subsidies to education across per capita expenditure deciles of individuals is presented in Table 14. Table 15 combines this information with details on education related spending disbursed directly by the household. Note that in both tables, the absolute expenditure levels are expressed in monthly Rupiahs per person, and given for the all, all urban, and all rural Indonesia distributions.[20]

Table 14 indicates that the aggregate subsidy to education is highest for the poorest 40 percent (with the exception of the all Indonesia tenth decile) and (generally) increasing from the first to the fourth deciles. For the remaining 6 deciles, the subsidies are relatively constant across the deciles. There is more of a tendency for the absolute amounts to increase from deciles 5 to 10 for urban Indonesia and this is reflected, though less pronounced, in the all Indonesia numbers. The aggregate subsidy represents the sum of government expenditures on each of the four education categories.

The subsidies to primary education are found to decline almost monotonically across the deciles; lower secondary subsidies follow a pattern similar to that of the aggregate subsidy and for the upper secondary and tertiary levels, the subsidy tends to increase through the fourth decile, experience a sharp decline and a steady rise thereafter. Recall that it is assumed that all students in the bottom 4 deciles attend public schools. At

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[20] Some children start school before they reach 7 years of age. The SUSENAS indicates that there were 966,809 6 year olds attending primary school in 1987. In the incidence of utilization tables of Section 3, these children do not figure since the proportions refer to the 7 to 12 age group. However, they are factored in when calculating per student subsidies to primary schooling. They are also included when the paper examines the distribution of the subsidies across groups as well as household expenditures per student in 1987, Tables 14 and 15. Finally, 6 year olds are not counted in Table 16 which compares the distribution of the share of subsidies between 1978 and 1987.

the higher expenditure levels less than 100 percent do so, with that percentage declining further the higher the education level (see footnote 19). This explains the break which occurs (for all categories other than primary school) between the fourth and fifth deciles. The total subsidy to education represents a declining percentage of per capita household expenditures, reaching up to 19 percent of per capita expenditures for the poorest 10 percent of the Indonesian population.

Education subsidies are therefore quite progressive. This reflects a combination of factors including the propensity to attend each schooling level, the propensity to attend public schools, and the proportion of each decile's population who are children.

Table 15 presents an overall "household education account" for Indonesia. Outlays on education by both the government and the household itself are juxtaposed across quantiles. Household expenditures are those identified by the SUSENAS and include those on textbooks, stationary, school construction, school fees and PTA dues (parent-teacher association) contributions. As pointed out previously, some potentially important costs of schooling are omitted from this picture. In particular, the opportunity costs of children attending school and the transport costs associated with getting there can be expected to be significant as well as to vary across deciles in their significance. Unfortunately, their magnitudes can not be estimated from the available data. Still, the expenditures that we are able to distinguish are of themselves informative.

Total per capita expenditure on education (from all sources) is an increasing function of total household per capita expenditures with the exception of the abrupt drop which follows the fourth decile. This is true for the all Indonesia, all urban, and all rural Indonesia distributions. A closer look at the source of those expenditures indicates that public spending is more important than private spending for all deciles in rural Indonesia and for all but the highest per capita expenditure group at the all Indonesia level. The latter exception appears to be largely due to the dramatic jump in

the per student household expenditure which occurs between the ninth and tenth deciles. In urban Indonesia, government outlays are exceeded by those expended directly by households for the eighth decile and upwards. The rich certainly appear to be willing to spend amply on their children's education. Interestingly, Table 15 also shows that this factor is the primary contributor to the increasing nature of total education expenditures over the per capita expenditure distribution, rather than the fact that greater numbers of children attend school in the higher expenditure groups. The per capita amount spent by households can be decomposed, as is done in Table 15, into expenditures per student and students per person. The latter can be seen to rise with the deciles but only mildly. One explanation for this is that the lower deciles contain a larger total number of school age children.

These results indicate that Indonesia's education subsidies are well targeted in that their absolute levels tend to be higher for the lower deciles. The benefits as a proportion of per capita expenditures are thus also higher the lower the standard of living. Public provisioning (as a component of household specific expenditures on education) tends to be far more important for the poor.

Changes in the Distribution of Education Subsidies Between 1978 and 1987

A comparison of the 1978 and 1987 distributions of the shares (expressed as percentages) of government subsidies to the various levels of education across household expenditure quantiles is presented in Table 16. Note once again that in deriving the 1987 figures, the earlier study's methodology has been closely replicated.[21] The numbers are fully comparable. The shares given in Table 16 are for the whole of Indonesia and so underlying population movements between the two dates do not cause a problem.

In the aggregate, there has been no change in the share distribution between 1978 and 1987. However, the changes are marked at both secondary schooling levels and at the university level. For example, whereas

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[21] See the above note.

the top 30 percent of the population appropriated 55 percent and the bottom 40 percent only 22 percent of total public expenditures on senior secondary schools in 1978, the shares had become 36 and 43 percent respectively in 1987. This is a marked pro-poor shift in benefits from this category of spending. At the tertiary level, by 1987 the wealthiest group's share had dropped from 83 to 60 percent, while the share of the poor increased more than 3 fold to 24 percent and the middle group's share rose by 60 percent to 16, from the shares received in 1978. These shifts represent substantial movements in a pro-poor direction.

It should be noted that the position of the middle 30 percent has altered very little other than at the tertiary level. It is also interesting to note that the poorest group's loss in the share of education subsidies by 3 percentage points at the primary education level appears to cancel out the seemingly large gains at higher schooling levels. This is reflected in the lack of any change in the aggregate share of education subsidies accrueing to the bottom quantile. There appear to be two factors driving these results. The first is that such a large proportion of all subsidies in terms of Rupiahs goes to primary education. Compounding this effect is the assumed change in the proportion of total students attending public versus private institutions across the quantiles.

On the whole, the government's disbursements on education cannot be said, based on these results, to be badly targeted. Indeed, at all except the university levels, the share of total education subsidies going to the poorest 40 percent of the population exceeds their population share.

Government Subsidies for Health Care

The requisite health financing data is taken from a careful compilation of recurrent expenditures on hospitals and health centers (World Bank, 1991a). The same source also estimates cost recovery to have been 3 percent of total recurrent expenditures on the public health center system, and 19.9 percent of recurrent expenditures on public hospitals (Table 5.3).

These amounts are subtracted from recurrent expenditures to get the net government subsidy. Finally, the number of yearly visits to hospitals and primary health centers are derived directly from the SUSENAS, and together with the recurrent expenditure levels, used to calculate the per visit subsidies.

The earlier study (Meesook, 1984) added up the 1980/81 routine budgets from the three government levels, assumed that about two thirds of that total actually went to health care as an estimate of recurrent expenditures, and apportioned that between hospitals and public health centers. The fees collected from users and ASKES insurance were then subtracted from the expenditure estimate to get the total yearly subsidy. Next, total yearly visits to different health facilities were assessed from the 1980 census.

One difficulty arises due to the fact that hospital care is also provided by private facilities in Indonesia. Public hospitals accounted for 66 percent of total inpatient days and 72 percent of all outpatient visits in 1985 (72% of total hospital visits[22]). The subsidy for each hospital visit is calculated to be Rp 5,200 when no distinction is made between public and private hospitals. This appears to be what was done in the earlier study (Meesook, 1984) and thus provides the only basis for comparison with the earlier results (Table 21).

Tables 18 and 19, which present subsidy incidence estimates for 1987, adopt a different approach. Although it is not possible to identify visits to public as opposed to private facilities from the 1987 SUSENAS utilization records, this information is available from the special health module included in the 1990 SUSENAS. Public as a proportion of total hospital visits derived from the 1990 data are given in Table 17 and underlie the 1987 distribution of subsidies across deciles presented in Tables 18 and 19. This

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[22] Public visits as a percentage of total hospital visits are calculated from Ministry of Health data reported in Table 2.4, World Bank 1991a. The calculation is based on the total number of discharges and the total number of outpatient visits and the proportion of those which were private.

is the first time that such information is available at the household level for Indonesia. Although the rich are widely believed to self select away from public facilities, the numbers in Table 17 provide little evidence for this in rural areas. Indeed, the absence of any pattern across consumption deciles in the rural distribution of total public hospital outpatient or inpatient visit percentages is striking. This is less the case in urban Indonesia where there is some evidence of a negative correlation between the share of visits which are public and consumption levels. The rural numbers no doubt reflect lower rural densities and consequent lack of a feasible public/private choice for many in the sector.

It is also important to allow for the fact that hospital visits include both inpatient and outpatient care and that different subsidy magnitudes are associated with each. In addition, as a proportion of total hospital visits, inpatient visits tend to increase with consumption. In order to determine the level of each subsidy, I have solved for x_I in the identity $H = x_O N_O + x_I N_I$, where H denotes the hospital budget net of user fees, x_O is the average subsidy to a hospital outpatient visit, x_I is the average subsidy to one inpatient day, N_O stands for the number of public outpatient visits and N_I for the number of public inpatient visits. N_I and N_O are known from the SUSENAS and H is also known as discussed earlier. An estimate of the ratio of the outpatient to inpatient rate of subsidy (x_O/x_I) must be made. Several studies have evaluated unit costs for individual health facilities in Indonesia. In these studies, unit costs are derived by adding up the individual cost components for a specific service output.[23] Such studies for Indonesia consistently find unit costs to vary enormously from one facility to another. The present study is unable to take this into consideration and must therefore average over various estimates. One study of a sample of 40 hospitals covering the entire gamut of hospital categories located in

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[23] This method represents a very different approach to the one pursued in this paper. But, it shares some of the same difficulties, including those encountered in collecting the data.

Indonesia calculated average unit costs in 1986/87 to be Rp 3,593 for an outpatient visit and Rp 12,803 for one inpatient day (Djuhari Wirakartakusumah et al., 1988).[24] Data on tariffs charged by a number of facilities for specific hospital treatments indicate an average fee of Rp 300 for outpatient and Rp 2,089 for inpatient care (MOH, 1991a). This establishes a subsidy ratio of .307. Based on this information, the hospital outpatient subsidy is estimated to be Rp 4,500 and the inpatient subsidy Rp 14,600.

The average subsidy from recurrent expenditures for a visit to a health center is calculated to be Rp 500.[25] Although both sets of estimates of the per unit subsidies must be viewed as very rough, they do permit an idea of the relative orders of magnitude at stake.

The Incidence of Government Health Subsidies in 1987

Results of the 1987 analysis of the incidence of health subsidies are presented in Tables 18 and 19. As before, monetary units are expressed in monthly Rupiahs per person and results given for the all Indonesia, all urban, and all rural Indonesia population distributions. Table 18 characterizes the decile specific distribution of public subsidies to hospitals and primary health centers in 1987. The hospital subsidy calculations are made differentiating between inpatient and outpatient visits as described above, and assume that the distribution of public hospital visits across deciles in

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[24] These are averages for class D and C hospitals. Note also that the SUSENAS does not contain details on the length of hospitalization episodes. The paper assumes each inpatient visit to be worth one subsidy amount.

[25] A study based on a survey of 42 rural health centers in 5 provinces in 1986/87, found average unit costs for curative care to average around Rp 900 per visit, varying from a low of Rp 526 for MCH to a high of Rp 1,337 for family planning consultations (Gani et al., 1988). Although the official (MOH recommended) fee at the time was Rp 150, it seems that many local governments raised them to somewhere between Rp 300 and Rp 1000 (World Bank, 1991a). Based on a fee of Rp 300, the above average unit cost estimate points to a Rp 600 per visit subsidy, not too far off from the paper's estimate for primary health centers. It is true that some patients pay less, while some are treated gratis if they are in possession of the letter of indigence from the village headman. On the other hand, total visits from the SUSENAS data set include posyandu consultations whose unit costs are low and which were not considered in the above study.

1987 is as indicated by the 1990 SUSENAS health module (see Table 17).

The overall subsidy is found to be mildly progressive in that the subsidy as a percentage of household consumption tends to be higher for the poor. Absolute levels tend to increase with the levels of per capita expenditures, but decline as a proportion of household per capita expenditures. Hence, they are inequality reducing. However, from the evidence, it cannot be argued that the programs are particularly well targeted. Indeed, uniform (untargeted) provision of lump-sum transfers would be much more progressive. The magnitude of the hospital subsidy tends to increase much more with per capita expenditures than that of the health center benefits. The latter are generally much flatter across deciles, though they tend to increase for the top 3 rural deciles and to decrease for the top 3 urban ones. This result is in line with Section 4's findings that in rural areas utilization of public health centers is not limited to poor households but that the oppo ite tendency is true in urban Indonesia.

Table 19 summarizes Indonesia's "household health account" in 1987 in a similar way to that done for education in Table 15. Total per capita spending on health care is found to generally increase (though with some ups and downs) the higher the decile. Both public and private expenditures follow a similar upward trend, though public exceed private outlays for most deciles. The exceptions occur for the tenth decile for the all Indonesia and rural Indonesia distributions. In urban Indonesia, household spending surpasses that of the government starting with the seventh decile. Again we find that public provisioning is relatively more important than private provisioning for the poor.

Variations in household per capita expenditures across quantiles are the result of various factors. Specifically, spending per individual can be interpreted to be the product of the number of illnesses reported per person, times the proportion of total reported illnesses which are treated, times the level of expenditures per treatment. Table 20 presents the results of this decomposition. Clearly, the observation that private per capita

outlays on health care follow an upward trend is due both to the way in which expenditures per treatment rise and to the swelling share of reported illnesses which are treated as total household per capita consumption expenditures increase. On the other hand, the number of illnesses reported do not appear to vary too much with total expenditures though there is a tendency for them to diminish in urban Indonesia and to increase (more markedly) in rural areas.

An important missing factor in the preceeding analysis, which will tend to influence the true distribution of health subsidies in Indonesia, is health insurance coverage under PHB (Perum Umum Husada Bhakti: formerly ASKES). This government run insurance scheme covers all active and retired public servants along with their spouses and up to 3 dependants. Estimates of the numbers covered under this scheme vary from around 10.5 million to 14 million for 1986 (World Bank, 1991a). The scheme is financed through a 2 percent levy on the base salaries of all government workers and the pension payments of retired ones. Those covered are rarely poor.

Coverage is thought to substantially boost utilization of both primary health care centers and government hospitals where free care is accorded to cardholders. It can be presumed that PHB subscribers use facilities relatively more than others ceteris paribus. However, there is some controversy about what this implies for subsidy incidence. From existing evidence, it is probable that PHB contributions do not cover costs; what is less clear is whether those covered are subsidized more or less than those not covered. It has been claimed that PHB reimburses health care facilities at the official tariff rates (and perhaps at even lower rates); see World Bank (1991a). This would imply higher subsidy rates to PHB patients (since official tariffs are lower than average prices) and an underestimation of the regressivity of the health care sudsidy distribution. However, others claim that PHB reimbursements are actually higher than what other patients pay in

user fees, making the subsidies to civil servants lower than to others.[26] This would in turn tend to imply a more progressive distribution of overall subsidies than has been estimated here. It is unfortunately not clear how to take account of this without data which identifies PHB recipients. For lack of any better evidence, I shall assume that the rate of subsidy is the same.

A further omission which may or may not bias the paper's results includes the fact that a variety of hospital levels and costs exist. Unit costs at level A and B hospitals are much higher than at lower level hospitals. And these hospitals tend to be used by wealthier patients. However, they also charge much higher user fees.

Changes in the Distribution of Health Subsidies Between 1978 and 1987

Table 21 allows a comparison of the distribution of the percentage shares of subsidies to hospitals and public health centers across consumption and geographical groups between 1978 and 1987.[27] One must be careful in interpreting these numbers as the underlying population distribution is likely to have also altered between the two dates, particularly due to urbanization. The population shares by geographical location given in the last row of Table 21 can be used to help us judge the equity of subsidy shares in rural versus urban areas and in Java versus the Outer Islands. The necessary data is not available to enable the comparison across consumption groups in specific regions. The last column, showing the shares for the total Indonesian population is interpretable on its own. It clearly shows that at the all Indonesia level, the distribution of health subsidies has become more equitable. The lower 40 percent have gained substantially. This result appears to be driven by gains to the urban poor.

Yet, the distribution does not suggest that public health care

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[26] Verbal communication from health economist with knowledge of the Indonesian health scene.

[27] Recall that this comparison is made under the same assumptions as Meesook (1984).

expenditures result in well targeted benefits. Geographically, urban areas appropriate much more than their fair share based on their population weight. If anything, this appears to have become more pronounced since 1978, and is particularly so in the Outer Islands. Conversely, the overall share going to the rural areas has dwindled, most dramatically in rural Java.

The distribution of health sector subsidies has become decidedly more equitable since 1978. To make this point more forcefully, it may be useful to contrast the paper's results, based on 1987 patterns of use, with the results of an exercise aimed at making a rough estimate of the distribution of health spending in 1985/86 using the 1978 pattern of use (Griffin, 1990). Griffin combines the 1978 utilization incidence with 1985/86 public health expenditures on hospitals and health centers, using essentially the same budget data as has been used in this paper.[28] Griffin's rough approximation produces an extremely skewed distribution which has the poorest 40 percent of the population capturing about 17 percent, the middle 30 percent 31 percent, and the wealthiest 30 percent some 52 percent of total health care outlays. Contrast this to the percentage shares in Table 21 of 31, 30, and 39 percent respectively. The bias in Griffin's results is due to his assumption that the pattern of utilization has been static.

Of course, to emphasize that their distribution has improved is not to say that health sector subsidies are well targeted, or that the system is particularly well suited to reaching the poor. Much progress is still to be achieved.

7. Conclusions

The last fifteen years have witnessed concerted government effort to increase the aggregate provision of basic social services in Indonesia. Little is known, however, about differences in access and utilization of these

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[28] The budget data used by Griffin has not been updated to 1986/87 as done here, and it is not clear whether cost recovery has been withheld.

publicly provided services and, hence, about how the benefits of social expenditures are distributed across socio-economic groups. The paper has characterized the profile of education and health facilities utilization and the incidence of social sector subsidies using household level data for 1987. It has also examined how the utilization and subsidy incidence profiles have altered since the late 1970s, a period which has seen a steady fall in absolute poverty in Indonesia.

In the education sector, the paper finds that the proportion of children attending school in each age group is correlated with living standards as measured by consumption expenditures, and that this correlation is increasing in education level, from negligible divergence across consumption groups at the primary school age level to considerable divergence at the senior secondary and university age group levels. Enrollments are higher in urban than in rural areas, for male than for female children, and in the Outer Islands relative to Java.

The observed patterns are qualitatively similar to those indicated for 1978. But there are some quantitative differences. Level improvements have occurred for all groups at all schooling levels. Although disparities similar to those found in 1978 are still evident, they are much less pronounced. Thus, rates of improvement have been higher for rural children, female children, and poorer children -- precisely the groups which had been lagging most in the late 1970s. In education at least, there is distinct evidence of catching up by the sector's historically disadvantaged groups.

This result cannot be attributed to higher overall living standards alone. A decomposition of the percentage change in aggregate enrollments between 1978 and 1987 has been used here to investigate what contribution changes in living standards have made relative to other factors such as government policies and taste changes. The results indicate that rising living standards played a part (particularly at the highest education levels and for male enrollments), but that other factors (identified by holding the 1978 distribution of consumption levels constant) contributed

substantially more to overall shifts, and in particular to those in female enrollments. Public policy aimed at increasing the number of primary schools and teachers, as well as at lowering the costs of having children attend elementary school, is likely to have been crucial to these effects.

A look at how public facilities are distributed across households' districts of residence, indicates that although primary schools can be said to be widely available -- they are found in 93 percent of all villages in Indonesia -- the availability of schools at all other levels is considerably narrower. In rural areas, at least, there seems to be little correlation between living standards and the presence of a school. Yet, the data implies that in many rural areas, long distances must be travelled to attend school at levels beyond elementary school. This fact is likely to present a greater handicap to children from poorer households, and especially to female students.

The paper has quantified the "household education account" identifying the contribution of both private expenditures and public expenditures at each consumption level. The amounts that households spend themselves on education related goods and services increase more than proportionately with household total expenditures on all goods and services. Public spending is generally higher than private spending for all but the highest consumption groups, who spend large sums on their children's education. Public provisioning is far more significant for the poor than for other groups.

Government subsidies for education are quite well targeted and this is particularly so for primary education. The aggregate subsidy -- the sum of public expenditures on all education levels -- is highest for the poorest deciles in absolute amounts received. This can be attributed to two factors. Poorer households, as judged by household per capita consumption, tend to be larger with more children; children of primary school age are all recipients of subsidies. At higher schooling levels, though less children from poorer families attend school, a mechanism is present through which many

richer parents self-select their children out of public facilities and into private schools.

When comparing the incidence of public education subsidy shares between 1978 and 1987, the paper finds that shifts have been markedly pro-poor at the secondary and university levels. The incidence of subsidies to primary schools was quite pro-poor in 1978, and has become slightly less so in 1987.

There is, however, great scope for reform, aiming to enhance the quality of education for the poor. Further public spending could be used to ensure that all schools are adequately endowed with the inputs necessary for good education. Basic public provisioning for the essential teaching materials, such as teachers' manuals, chalk, textbooks and so on, would help redress the vast quality differentials which exist between schools, and are primarily associated with private provisioning. Many have argued that education policy should be more oriented towards improving the quality of basic education. This paper's results reinforce this message from a slightly different perspective. Such a policy, achieved through public provisioning of basic teaching and learning materials, appears to be a particularly efficient way to target and transfer resources to poorer groups in Indonesia.

The health sector has also undergone significant changes in recent decades. Public policy efforts at achieving widespread provision of primary health care in rural Indonesia are reflected in the utilization data. The paper finds that there is increased recourse to some kind of medical service by all those who report being ill -- whether poor or otherwise -- together with a drop in the use of practitioners of traditional medicine. The changes since 1978 are most striking for the poorest groups. Nonetheless, in 1987 it remains true that whether an illness resulted in outpatient or inpatient care is highly correlated with living standards and urban residence. The likelihood of visiting a private doctor or a hospital is lower for the poor.

The use of primary health centers in rural areas has spread and equalized over the consumption quantiles. The poorer groups used these services much more in 1987 than they did in 1978. Rich and poor now appear to

be equally likely to seek treatment in these facilities. This result suggests that public subsidies to primary health care centers are not as pro-poor as seems to be widely believed. It also suggests that a more pro-poor distribution of benefits would require price discrimination, though it is unclear how feasible that is in rural areas. Health center usage in urban areas contrasts with that in rural areas in that it declines much more with rising living standards, and so subsidized primary health care is more pro-poor in that sector.

Household expenditures on health goods and services (including on doctors, inpatient care, birth control, and drugs) are found to generally increase more than proportionately with consumption. The implication is that they are luxury goods and that, again, if the objective is to aid the poor, general subsidies should not apply to them.

All medical facilities are more readily accessible in urban areas. Rural Indonesia is well serviced by family planning posts -- now in 79 percent of villages -- though other facilities remain sparse. The data suggests that travel time and costs may still be prohibitive for many in Indonesia's low density rural areas.

The overall health subsidy is found to be progressive, but only mildly so, and much less so than for education. Absolute benefits are very low on a per capita basis, and not well targeted. As expected, the incidence of subsidies to hospitals increases with consumption while that to primary health centers is generally constant across deciles. For all but the highest consumption groups, public exceeds private spending.

All in all, usage patterns have altered enough to make the distribution of public expenditures in the health sector much more equitable than in 1978. The lowest 40 percent of the consumption distribution have experienced considerable gains, driven primarily by gains to the urban poor. Although the aggregate distribution of the benefits from public health spending has improved since 1978, benefits are still far from being biased toward the poor. Urban areas continue to be relatively favored and rural ones

to be shortchanged. This tendency appears to have risen.

From the point of view of using social sector spending as an instrument for poverty alleviation in Indonesia, the paper's findings are indicative. Given existing patterns of usage, education expenditures are more efficient in directly reaching the poor than health expenditures. Within the education sector, subsidies to primary and to a lesser extent lower secondary education, will do most to reach poorer households and raise their living standards. This is also a potentially important conduit for attaining relatively isolated rural households. Within the health sector, subsidies to basic primary health care provide the best option for reaching the poor, though based on recent usage patterns reviewed in this paper, they are still far from an ideal instrument.

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TABLE 1: PROPORTION OF CHILDREN IN DIFFERENT AGE GROUPS ATTENDING SCHOOL BY HOUSEHOLD EXPENDITURE QUANTILES, AREA AND REGION, INDONESIA IN 1987
(%)

	Household Expenditure Quantile	Java			Outer Islands			Indonesia		
		Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Ages 7-12	Lower 40%	93.3	89.2	90.4	93.8	89.2	90.0	93.4	89.1	90.2
	Mid 40%	97.3	92.2	93.6	96.7	93.3	93.9	97.2	92.6	93.7
	Upper 20%	97.9	94.8	95.6	97.7	96.2	96.5	97.8	95.7	96.2
	Total	95.5	91.2	92.4	95.5	91.9	92.5	95.5	91.5	92.5
Ages 13-15	Lower 40%	81.7	54.8	63.2	89.2	71.4	75.4	84.1	61.3	67.6
	Mid 40%	91.6	67.2	74.9	93.7	79.1	82.1	92.4	73.2	78.3
	Upper 20%	88.9	81.8	84.1	94.2	88.0	89.3	90.4	85.2	86.7
	Total	86.9	64.5	71.6	91.7	77.5	80.5	88.5	70.3	75.3
Ages 16-18	Lower 40%	52.9	18.0	30.6	71.0	35.7	45.0	58.8	25.0	35.9
	Mid 40%	73.3	34.5	48.9	84.6	49.1	58.5	76.8	40.9	52.8
	Upper 20%	72.2	55.4	61.2	87.7	64.6	70.0	76.9	60.2	65.3
	Total	65.7	33.5	45.1	80.0	47.6	56.0	70.2	39.6	49.4
Ages 19-25	Lower 40%	9.0	2.0	4.6	17.6	5.6	8.6	11.4	3.1	5.8
	Mid 40%	19.8	4.3	10.1	31.3	7.5	14.2	23.6	5.7	11.8
	Upper 20%	38.3	13.4	22.6	39.8	12.3	19.2	38.6	13.3	21.5
	Total	20.8	5.8	11.4	29.2	8.2	13.7	23.3	6.7	12.2

Source: 1987 SUSENAS data tapes, Biro Pusat Statistik, Jakarta.

Note: Individuals are ranked by per capita household expenditures and then divided into the lower 40%, middle 40% and upper 20% of the distribution.

TABLE 2: PROPORTIONS OF CHILDREN IN DIFFERENT SOCIOECONOMIC GROUPS ATTENDING SCHOOL, BY AGE GROUP AND SEX, INDONESIA IN 1978 AND 1987 (%)

Socioeconomic Characteristics		Ages 7-12		Ages 13-15		Ages 16-18		Ages 19-25	
		Male	Female	Male	Female	Male	Female	Male	Female
All Indonesia	1987	92	93	77	73	54	45	16	9
	1978	(84)	(82)	(59)	(47)	(34)	(22)	(8)	(2)
Java	1987	92	93	80	69	50	40	16	8
	1978	(83)	(80)	(57)	(41)	(30)	(19)	(6)	(2)
Outer Islands	1987	93	93	82	79	59	53	18	11
	1978	(86)	(84)	(62)	(57)	(40)	(26)	(10)	(4)
All Urban	1987	96	95	91	86	76	65	29	18
	1978	(92)	(88)	(81)	(67)	(60)	(40)	(18)	(7)
All Rural	1987	91	92	73	68	44	35	10	4
	1978	(82)	(80)	(54)	(41)	(27)	(16)	(5)	(1)
Household Per Capita Expenditure Quantile									
Lower 40%	1987	90	90	67	62	33	24	6	2
	1978	(81)	(78)	(48)	(37)	(20)	(9)	(2)	(0)
Middle 30%	1987	93	93	79	75	54	45	11	5
	1978	(84)	(82)	(60)	(47)	(30)	(20)	(7)	(2)
Upper 30%	1987	97	97	92	87	77	65	29	17
	1978	(91)	(90)	(77)	(59)	(57)	(36)	(14)	(6)

Source: 1987 SUSENAS data tapes and O.A.Meesook, 1984.
Note: Each number represents total number of schoolgoing children in a specific age group divided by total number of children in that group.

TABLE 3: PROPORTIONS OF CHILDREN IN DIFFERENT PER CAPITA EXPENDITURE CLASSES ATTENDING SCHOOL, BY AGE GROUP AND SEX, INDONESIA IN 1978 AND 1987 (%)

Monthly Per Capita Expenditure Class (1978 Rupiah)		Ages 7-12		Ages 13-15		Ages 16-18		Ages 19-25	
		Male	Female	Male	Female	Male	Female	Male	Female
less than 2000	1987	87	86	57	62	14	25	3	0
	1978	(81)	(76)	(56)	(31)	(12)	(4)	(-)	(-)
2000 - 2999	1987	85	86	56	56	25	14	3	1
	1978	(78)	(74)	(36)	(34)	(21)	(11)	(-)	(-)
3000 - 4999	1987	90	90	68	61	32	24	5	3
	1978	(84)	(82)	(58)	(43)	(26)	(13)	(-)	(-)
5000 - 9999	1987	93	94	80	76	55	47	12	6
	1978	(88)	(87)	(71)	(59)	(44)	(34)	(-)	(-)
10000 or more	1987	97	97	92	87	81	65	33	20
	1978	(94)	(92)	(87)	(62)	(69)	(38)	(-)	(-)

Source: 1987 SUSENAS data tapes and Chernichovsky and Meesook, 1985.

TABLE 4: DECOMPOSITION OF THE PERCENTAGE DIFFERENCE IN SCHOOL ENROLLMENTS IN INDONESIA BETWEEN 1978 AND 1987

	Ages 7-12		Ages 13-15		Ages 16-18	
	Male	Female	Male	Female	Male	Female
Change in overall enrollment	5.4	8.4	9.0	22.6	7.1	15.0
Amount due to :						
Change in distribution holding 1978 enrollments constant	-1.2	-0.4	5.9	5.2	8.7	6.9
Change in enrollments holding 1978 distribution constant	5.6	8.4	10.2	20.5	7.3	12.7
Covariance between changes in enrollment and changes in distribution	1.0	0.4	-7.1	-3.1	-8.9	-4.6

Source: Author's calculations from 1987 SUSENAS data tapes and from Chernikovsky and Meesook, 1985.

TABLE 5a: TREATMENT OF ILLNESS, INDONESIA IN 1987 (%)

	Deciles of persons ranked by total household consumption per capita									
	1	2	3	4	5	6	7	8	9	10
ALL INDONESIA										
Last week's illness treated by										
Private doctor	2.15	2.54	3.43	5.28	6.82	8.62	12.21	14.18	20.43	31.65
Hospital	1.99	2.25	2.42	4.01	4.49	4.33	6.59	6.43	7.32	11.42
Primary health center	26.75	29.35	28.05	29.10	27.21	29.47	29.49	32.15	27.72	19.48
Polyclinic	3.44	3.73	2.02	3.82	3.56	2.16	2.26	3.14	3.12	2.85
Paramedic	14.93	16.20	16.92	14.64	15.01	16.51	15.57	12.32	11.60	8.73
Traditional healer	4.39	4.45	4.34	4.64	4.83	3.80	3.55	3.24	3.88	2.39
Self or family	35.72	34.60	33.26	31.12	32.67	30.33	25.79	23.97	21.60	20.74
No medication	10.63	7.87	9.57	7.41	5.42	4.78	4.55	4.59	4.04	2.75
Percent of above receiving inpatient treatment	1.92	1.95	1.99	1.77	2.12	2.20	2.75	2.97	3.03	6.41
Inpatient at: Primary health center	36.84	44.95	53.83	29.31	21.30	34.31	14.70	36.95	23.92	20.28
Hospital	26.17	34.51	31.35	40.98	53.29	54.08	75.00	57.28	66.04	74.43
Paramedic	32.59	7.80	6.09	14.87	9.82	6.82	6.98	2.18	3.66	4.67
Traditional healer	4.39	12.74	8.72	14.83	15.59	4.79	3.31	3.60	6.39	0.63
URBAN INDONESIA										
Last week's illness treated by										
Private doctor	7.59	10.61	19.03	21.53	18.76	22.15	32.69	31.54	36.60	46.77
Hospital	7.14	5.65	8.67	12.28	13.72	9.28	8.83	13.10	15.77	15.72
Primary health center	26.98	27.64	29.31	28.76	29.90	33.04	24.75	21.22	16.46	11.00
Polyclinic	1.06	5.41	1.56	0.51	3.03	3.66	5.50	0.65	1.09	3.48
Paramedic	13.38	14.11	10.28	11.02	4.86	3.17	3.84	6.91	3.19	3.32
Traditional healer	2.94	2.28	0.89	2.08	0.67	1.05	1.34	2.58	1.44	1.44
Self or family	33.40	30.08	25.91	20.73	26.40	22.55	19.45	20.42	23.17	18.01
No medication	7.51	4.22	4.35	3.10	2.64	5.10	3.61	3.59	2.28	0.28
Percent of above receiving inpatient treatment	2.36	0.44	2.96	3.25	2.54	2.81	3.07	4.47	5.04	9.44
Inpatient at: Primary health center	39.25	0.00	3.10	5.20	21.77	6.46	15.51	19.39	12.47	1.64
Hospital	45.37	100.00	96.50	94.80	78.23	89.72	64.33	78.07	84.84	92.46
Paramedic	0.00	0.00	0.39	0.00	0.00	3.39	3.16	2.54	0.55	5.90
Traditional healer	15.38	0.00	0.00	0.00	0.00	0.43	17.00	0.00	2.15	0.00
RURAL INDONESIA										
Last week's illness treated by										
Private doctor	1.81	1.73	2.28	3.42	4.51	6.09	5.84	8.01	11.52	15.94
Hospital	1.56	2.21	1.66	2.66	3.54	3.83	3.06	4.42	3.87	5.60
Primary health center	26.80	28.67	29.21	29.00	28.61	27.85	29.76	29.29	32.13	27.05
Polyclinic	3.64	2.65	3.14	2.13	4.08	2.94	1.82	2.81	3.43	3.57
Paramedic	15.49	15.23	17.29	17.17	14.59	15.69	16.73	17.91	15.93	17.13
Traditional healer	4.85	5.23	3.32	5.18	4.31	5.15	5.23	4.15	4.52	4.72
Self or family	34.21	36.35	33.04	33.22	31.36	32.66	32.89	28.21	23.81	21.64
No medication	11.64	7.92	10.06	7.24	9.01	5.81	4.68	5.20	4.78	4.36
Percent of above receiving inpatient treatment	1.81	1.50	2.08	2.18	2.11	2.78	1.85	2.46	2.86	4.25
Inpatient at: Primary health center	26.81	55.49	43.97	54.32	28.58	23.06	36.74	29.51	40.95	37.95
Hospital	34.81	7.43	43.03	25.57	44.92	51.60	42.21	60.02	48.89	54.05
Paramedic	33.07	21.44	6.40	11.21	13.80	10.63	10.62	6.18	5.15	5.54
Traditional healer	5.32	15.64	6.60	8.90	12.70	14.72	10.43	4.29	5.01	2.46

Source: 1987 SUSENAS data tapes.

TABLE 5b: THE UTILIZATION OF MODERN HEALTH PROVIDERS, INDONESIA IN 1987
(ANNUAL RATES PER CAPITA)

Deciles of persons ranked by total household consumption per capita

	1	2	3	4	5	6	7	8	9	10	ALL
ALL INDONESIA											
Total Visits	1.44	1.71	1.66	1.88	1.91	2.19	2.45	2.51	2.61	2.30	2.07
Doctor	0.06	0.08	0.11	0.17	0.23	0.31	0.45	0.52	0.76	0.98	0.37
Hospital	0.06	0.07	0.08	0.13	0.15	0.16	0.24	0.24	0.27	0.35	0.18
Primary Health Center	0.78	0.94	0.88	0.96	0.91	1.06	1.09	1.18	1.03	0.60	0.94
Polyclinic	0.10	0.09	0.06	0.13	0.12	0.08	0.08	0.12	0.13	0.09	0.10
Paramedic	0.44	0.52	0.53	0.48	0.50	0.59	0.58	0.45	0.43	0.27	0.48
URBAN INDONESIA											
Total Visits	1.76	2.50	2.16	2.39	2.06	2.16	2.25	2.10	1.95	2.17	2.15
Doctor	0.24	0.42	0.60	0.69	0.55	0.67	0.97	0.90	0.98	1.26	0.73
Hospital	0.22	0.22	0.27	0.40	0.40	0.28	0.26	0.37	0.42	0.42	0.33
Primary Health Center	0.85	1.09	0.92	0.93	0.88	1.00	0.74	0.61	0.44	0.30	0.77
Polyclinic	0.03	0.21	0.05	0.02	0.09	0.11	0.16	0.02	0.03	0.09	0.08
Paramedic	0.42	0.56	0.32	0.35	0.14	0.10	0.11	0.20	0.08	0.09	0.24
RURAL INDONESIA											
Total Visits	1.41	1.70	1.56	1.75	1.78	1.83	2.12	2.38	2.82	3.00	2.03
Doctor	0.05	0.06	0.07	0.11	0.14	0.20	0.22	0.30	0.49	0.69	0.23
Hospital	0.04	0.07	0.05	0.09	0.11	0.12	0.11	0.17	0.16	0.24	0.12
Primary Health Center	0.77	0.96	0.85	0.93	0.92	0.90	1.10	1.11	1.35	1.17	1.01
Polyclinic	0.10	0.09	0.09	0.07	0.13	0.10	0.07	0.11	0.14	0.15	0.11
Paramedic	0.44	0.51	0.50	0.55	0.47	0.51	0.62	0.68	0.67	0.74	0.57

Source: 1987 SUSENAS data tapes.

TABLE 6: TREATMENT OF ILLNESS BY REGION AND HOUSEHOLD EXPENDITURE QUANTILE, INDONESIA IN 1978 AND 1987 (%)

		Java						Outer Islands					
		Urban			Rural			Urban			Rural		
		Lower 40%	Middle 40%	Upper 20%	Lower 40%	Middle 40%	Upper 20%	Lower 40%	Middle 40%	Upper 20%	Lower 40%	Middle 40%	Upper 20%
Last week's illness treated by													
Self, family or no treatment	1987	31 8	26.4	19.6	45.7	37.6	27.6	34.7	23.7	27.9	41.2	35.6	28.0
	1978	(58)	(27)	(12)	(53)	(41)	(40)	(33)	(52)	(26)	(43)	(39)	(33)
Primary health center	1987	26.9	26.3	14.4	30.5	31.5	31.0	31.2	30.1	14.5	25.5	25.8	28.0
	1978	(19)	(22)	(15)	(17)	(37)	(21)	(27)	(10)	(22)	(11)	(35)	(23)
Private doctor	1987	29.3	33.0	46.2	19.0	23.0	32.7	19.1	26.5	39.4	17.9	22.3	26.8
	1978	(13)	(34)	(58)	(22)	(12)	(29)	(17)	(27)	(38)	(15)	(9)	(25)
Hospital	1987	8.21	9.63	16.5	1.11	3.31	3.69	9.01	14.9	14.1	3.07	4.56	5.73
	1978	(0)	(14)	(5)	(1)	(1)	(7)	(7)	(5)	(11)	(1)	(2)	(6)
Private clinics	1987	2.41	3.43	2.58	1.55	2.31	1.64	2.06	2.61	1.89	4.51	3.97	5.15
	1978	(0)	(0)	(9)	(1)	(2)	(0)	(0)	(3)	(2)	(8)	(5)	(3)
Traditional healer	1987	1.46	1.19	0.88	2.12	2.31	3.35	3.92	2.19	2.23	7.78	7.68	6.37
	1978	(10)	(3)	(1)	(6)	(7)	(3)	(13)	(4)	(1)	(22)	(10)	(10)

Source : 1987 SUSENAS data tapes and Chernikovsky and Meesook, 1986.

Note : Individuals are ranked by per capita household expenditures.
Private clinics includes maternity hospitals and clinics from the 1978 SUSENAS and polyclinics from the 1987 SUSENAS.
Paramedics are included in private doctors in both surveys.

TABLE 7: PROPORTION OF VILLAGES IN DISTRICT OF RESIDENCE WITH PUBLIC EDUCATION FACILITIES, INDONESIA IN 1987
(%)

Education Facilities	Deciles of persons ranked by total household consumption per capita										
	DECILE 1	DECILE 2	DECILE 3	DECILE 4	DECILE 5	DECILE 6	DECILE 7	DECILE 8	DECILE 9	DECILE 10	TOTAL
Public											
Kindergarten Schools											
All Indonesia	2.14	1.86	1.78	1.86	1.89	1.97	2.23	2.45	2.84	3.82	2.29
Urban Indonesia	2.35	2.96	3.38	3.41	3.57	3.83	3.85	4.24	4.41	4.98	3.70
Rural Indonesia	2.16	1.87	1.83	1.69	1.70	1.65	1.63	1.65	1.65	1.73	1.76
Elementary Schools											
All Indonesia	94.8	94.2	93.9	93.6	92.6	92.0	91.1	91.1	91.0	91.2	92.5
Urban Indonesia	95.5	93.4	92.2	91.5	91.7	91.2	91.2	90.8	90.9	91.3	92.0
Rural Indonesia	94.9	94.0	94.1	93.5	93.4	92.5	92.2	91.0	90.6	91.2	92.7
Junior High Schools											
All Indonesia	12.9	12.5	12.5	12.9	13.2	13.9	15.5	17.9	22.6	29.2	16.3
Urban Indonesia	16.5	20.4	22.4	24.4	26.3	29.3	31.6	33.8	34.8	38.4	27.8
Rural Indonesia	12.8	12.3	12.2	12.0	11.8	11.6	11.6	11.7	11.6	12.4	12.0
Vocational Junior High Schools											
All Indonesia	0.98	0.91	0.93	1.05	1.11	1.27	1.47	1.69	2.22	2.88	1.45
Urban Indonesia	1.92	2.54	3.01	2.95	2.92	3.19	3.42	3.61	3.59	3.97	3.11
Rural Indonesia	0.97	0.84	0.83	0.79	0.84	0.79	0.79	0.80	0.80	0.83	0.83
Senior High Schools											
All Indonesia	2.72	2.85	2.94	3.35	3.68	4.21	5.18	6.75	9.61	14.07	5.54
Urban Indonesia	5.07	8.23	9.69	10.6	11.9	13.9	15.3	16.7	17.3	20.5	12.9
Rural Indonesia	2.69	2.61	2.68	2.66	2.69	2.71	2.69	2.80	2.88	3.24	2.76
Vocational Senior High Schools											
All Indonesia	1.53	1.64	1.74	2.16	2.36	2.89	3.68	4.83	7.03	10.35	3.82
Urban Indonesia	4.16	6.95	8.33	8.68	9.44	11.0	11.4	12.9	13.3	14.9	10.1
Rural Indonesia	1.49	1.39	1.45	1.40	1.47	1.40	1.38	1.46	1.47	1.74	1.46

Source: 1987 SUSENAS and 1986/87 POTENSI DESA data tapes.

TABLE 8: PROPORTION OF VILLAGES IN DISTRICT OF RESIDENCE WITH PRIVATE EDUCATION FACILITIES, INDONESIA IN 1987
(%)

Education Facilities	Deciles of persons ranked by total household consumption per capita										
	DECILE 1	DECILE 2	DECILE 3	DECILE 4	DECILE 5	DECILE 6	DECILE 7	DECILE 8	DECILE 9	DECILE 10	TOTAL
Private											
Kindergarten Schools											
All Indonesia	48.2	42.9	42.7	42.9	42.5	42.3	44.0	46.6	52.8	63.6	46.9
Urban Indonesia	55.4	57.9	60.9	63.5	63.7	67.1	67.6	71.2	72.3	78.1	65.8
Rural Indonesia	49.0	42.5	42.1	40.5	40.7	39.1	37.6	36.0	34.2	36.0	39.8
Elementary Schools											
All Indonesia	44.4	44.3	45.1	44.9	44.9	46.3	47.2	50.5	55.9	63.8	48.7
Urban Indonesia	50.9	55.3	59.8	60.5	62.9	66.3	67.4	69.8	69.3	74.4	63.7
Rural Indonesia	43.9	44.3	43.8	44.1	43.6	42.4	42.8	41.3	41.4	43.7	43.1
Junior High Schools											
All Indonesia	22.3	22.8	23.2	24.3	25.3	27.3	29.2	33.1	39.9	50.1	29.7
Urban Indonesia	32.8	40.3	45.3	47.4	48.9	52.7	54.6	57.8	57.8	63.9	50.1
Rural Indonesia	21.9	22.0	21.9	22.1	22.0	22.0	22.3	21.6	21.7	23.6	22.1
Vocational Junior High Schools											
All Indonesia	2.37	2.38	2.54	2.48	2.70	3.00	3.34	4.41	6.21	8.85	3.83
Urban Indonesia	3.24	4.23	5.03	5.78	6.59	8.27	9.31	10.3	10.5	12.8	7.60
Rural Indonesia	2.28	2.32	2.37	2.43	2.30	2.34	2.38	2.40	2.49	2.80	2.41
Senior High Schools											
All Indonesia	8.50	8.87	9.26	10.2	11.2	12.9	15.0	18.6	24.9	34.0	15.3
Urban Indonesia	17.0	24.4	29.1	31.3	32.8	36.4	38.7	41.5	41.9	46.9	34.0
Rural Indonesia	8.26	8.07	8.24	8.29	8.26	8.23	8.32	8.15	8.32	9.40	8.35
Vocational Senior High Schools											
All Indonesia	3.42	3.61	3.77	4.37	4.84	5.78	7.06	9.04	12.9	18.2	7.30
Urban Indonesia	7.59	12.0	14.3	16.0	16.6	19.3	20.9	22.2	22.7	26.2	17.8
Rural Indonesia	3.27	3.27	3.27	3.28	3.33	3.28	3.35	3.31	3.34	3.95	3.36

Source: 1987 SUSENAS and 1986/87 POTENSI DESA data tapes.

TABLE 9: PROPORTION OF VILLLAGES IN DISTRICT OF RESIDENCE WITH HEALTH FACILITIES, INDONESIA IN 1987 (%)

Health Facilities	Deciles of persons ranked by total household consumption per capita										TOTAL
	1	2	3	4	5	6	7	8	9	10	
Hospital											
All Indonesia	1.70	1.81	1.89	2.22	2.50	3.09	3.80	4.97	7.12	9.91	3.90
Urban Indonesia	3.98	6.56	8.10	8.80	9.31	10.8	11.5	12.4	12.5	14.1	9.81
Rural Indonesia	1.64	1.64	1.59	1.63	1.63	1.60	1.63	1.70	1.76	2.05	1.69
Maternity Hospital/Mother-and-child Care											
All Indonesia	7.43	7.76	8.04	9.09	9.77	11.1	13.2	16.5	22.6	32.0	13.7
Urban Indonesia	14.3	20.9	24.5	26.9	28.6	32.6	35.3	38.7	39.5	44.7	30.6
Rural Indonesia	7.15	7.22	7.02	7.55	7.34	7.36	7.30	7.41	7.50	8.41	7.43
Polyclinics											
All Indonesia	6.10	6.55	6.90	7.93	8.65	9.89	11.7	15.1	21.2	30.2	12.4
Urban Indonesia	11.9	17.9	21.5	23.6	25.4	30.8	32.9	36.3	37.0	42.9	28.0
Rural Indonesia	5.86	6.03	6.01	6.60	6.43	6.62	6.71	6.68	7.06	7.84	6.58
Primary Health Centers											
All Indonesia	10.2	9.96	9.95	10.5	10.9	11.8	13.6	16.7	22.7	31.9	14.8
Urban Indonesia	13.2	18.1	20.9	24.0	26.2	30.6	34.1	37.2	38.6	44.8	28.8
Rural Indonesia	10.0	9.81	9.59	9.56	9.48	9.31	9.28	9.21	9.32	10.1	9.57
General Practitioners											
All Indonesia	10.0	11.1	11.7	13.6	14.8	17.6	21.0	26.1	35.1	48.1	20.9
Urban Indonesia	23.9	35.1	42.1	45.0	46.3	52.2	53.9	58.8	59.7	65.7	48.3
Rural Indonesia	9.64	9.81	10.1	10.2	10.5	10.4	10.6	10.6	11.3	13.5	10.7
Family Planning Posts											
All Indonesia	72.3	75.2	76.9	78.1	78.1	79.3	80.1	81.4	83.2	85.3	79.0
Urban Indonesia	80.5	83.3	84.4	85.3	85.7	86.3	85.9	86.2	86.7	88.2	85.2
Rural Indonesia	71.8	73.5	75.5	76.6	77.5	76.9	77.8	78.0	78.3	80.3	76.6
Resident Physician											
All Indonesia	10.7	11.7	12.2	14.2	15.5	18.3	21.9	27.0	36.3	49.5	21.7
Urban Indonesia	24.2	35.9	43.5	46.3	47.8	53.8	55.6	60.7	61.3	67.7	49.7
Rural Indonesia	10.5	10.4	10.6	10.8	11.0	11.0	11.2	11.2	11.9	13.9	11.2
Resident Health Supervisor Nurse, Others											
All Indonesia	47.2	48.4	49.1	50.1	50.9	52.2	53.9	57.3	63.2	70.8	54.3
Urban Indonesia	60.8	65.8	69.5	70.5	71.3	73.7	74.8	77.7	77.5	80.1	72.2
Rural Indonesia	46.5	47.1	47.1	48.3	47.5	47.7	47.5	46.8	47.3	50.3	47.6
Traditional Midwife											
All Indonesia	91.5	90.9	90.6	90.4	89.3	88.5	87.9	87.4	87.0	87.2	89.1
Urban Indonesia	91.1	89.1	87.3	86.5	87.0	86.5	86.0	85.5	86.2	86.8	87.2
Rural Indonesia	91.4	91.1	90.9	90.4	90.5	89.5	89.2	88.2	87.8	88.8	89.8

Source: 1987 SUSENAS and 1986/87 POTENSI DESA data tapes.

TABLE 10: MONTHLY HOUSEHOLD PER CAPITA EXPENDITURE ON EDUCATION, INDONESIA IN 1987 (RP)

	Deciles of persons ranked by total household consumption per capita										Expenditure Elasticity	T Ratio
	1	2	3	4	5	6	7	8	9	10		
Nonformal Education												
All Indonesia	0.13	0.15	1.61	1.80	3.79	3.79	7.18	8.18	11.99	125.76	3.30	(9.4)
Urban Indonesia	0.39	3.61	3.48	10.54	15.50	10.93	19.17	43.81	46.51	334.96	2.96	(11.3)
Rural Indonesia	0.15	0.17	0.82	1.32	1.73	4.60	4.17	3.78	5.43	20.50	2.94	(7.7)
Stationery												
All Indonesia	23.76	30.25	35.38	41.02	47.23	52.06	58.51	76.55	97.18	173.94	1.00	(62.5)
Urban Indonesia	37.20	50.42	67.30	58.09	86.68	89.27	104.22	113.93	132.56	253.84	0.91	(18.0)
Rural Indonesia	23.24	28.26	30.76	37.08	40.22	45.74	46.60	55.57	71.93	122.37	0.97	(29.2)
Textbooks												
All Indonesia	12.65	19.66	24.42	32.87	35.39	41.88	51.95	57.75	94.12	210.84	1.36	(36.6)
Urban Indonesia	24.56	36.10	55.50	51.53	58.91	97.19	96.44	117.28	142.50	370.28	1.28	(18.8)
Rural Indonesia	11.92	15.61	21.41	26.59	34.55	35.95	37.19	46.58	56.06	119.87	1.32	(21.0)
Other School Contributions												
All Indonesia	16.82	18.05	21.05	24.97	24.48	34.12	36.83	42.91	75.02	183.19	1.21	(12.8)
Urban Indonesia	21.44	26.91	37.02	49.36	47.98	58.00	60.46	65.18	123.36	306.03	1.25	(13.1)
Rural Indonesia	16.75	17.85	17.90	22.80	23.94	25.36	32.43	25.70	44.64	130.69	1.14	(7.0)
School Fees & PTA Dues												
All Indonesia	60.06	105.74	131.41	176.75	214.10	267.23	348.84	467.45	734.09	1467.22	1.60	(30.6)
Urban Indonesia	235.44	342.70	520.98	584.37	697.19	842.06	954.53	1309.41	1343.61	2358.24	1.13	(17.5)
Rural Indonesia	52.90	80.27	112.50	124.11	158.63	176.35	191.91	231.14	293.24	595.97	1.36	(26.6)
School Construction Contributions												
All Indonesia	2.00	3.50	9.70	8.87	14.41	9.48	11.47	20.46	23.89	67.46	1.58	(8.6)
Urban Indonesia	9.80	26.21	7.60	22.67	23.94	17.22	27.37	34.50	55.16	138.17	1.21	(5.1)
Rural Indonesia	1.51	2.77	5.53	8.93	7.21	13.15	8.64	7.46	16.26	28.03	1.54	(6.1)
Total												
All Indonesia	115.43	177.34	223.57	286.28	339.39	408.56	514.80	673.29	1036.30	2228.40	1.45	(67.4)
Urban Indonesia	328.83	485.94	691.88	776.55	930.20	1114.68	1262.18	1684.11	1843.70	3761.53	1.17	(31.7)
Rural Indonesia	106.47	144.94	188.91	220.84	266.28	301.14	320.94	370.23	487.55	1017.43	1.28	(35.2)

Source: 1987 SUSENAS data tapes.

TABLE 11: MONTHLY HOUSEHOLD PER CAPITA EXPENDITURE ON HEALTH CARE, INDONESIA IN 1987 (RP)

	Deciles of persons ranked by total household consumption per capita										Expenditure	T
	1	2	3	4	5	6	7	8	9	10	Elasticity	Ratio
Doctors												
All Indonesia	1.9	5.06	6.13	8.03	8.23	10.73	19.44	25.49	39.64	86.04	1.85	(17.4)
Urban Indonesia	7.27	10.13	15.47	26.72	33.65	25.95	37.34	47.11	73.27	116.62	1.40	(12.6)
Rural Indonesia	1.53	2.94	5.29	7.1	8.22	8.06	8.8	16.08	20.81	63.29	2.05	(17.1)
Inpatient Care												
All Indonesia	0.75	1.53	7.39	1.79	2.93	3.76	4.23	11.03	14.35	63.41	2.01	(6.9)
Urban Indonesia	4.31	1.27	5.74	4.21	7.12	13.33	7.85	21.6	89.29	97.48	2.05	(5.6)
Rural Indonesia	0.95	0.34	2.58	8.23	1.88	3.67	3.26	3.1	10.72	23.54	1.99	(4.0)
Nurses/Midwives												
All Indonesia	0.25	0.77	0.75	1.53	2.21	1.9	3.35	7.47	9.45	10.03	1.93	(7.7)
Urban Indonesia	1.95	2.02	1.96	6.72	10.47	7.29	11.04	7.92	8.84	6.81	0.82	(2.6)
Rural Indonesia	0.15	0.97	0.38	0.29	1.62	2.6	2.14	1.99	5.96	11.38	2.47	(6.1)
Paramedics												
All Indonesia	4.68	7.29	7.07	9.21	8.65	9.57	8.52	9.27	8.74	6.27	0.10	(0.8)
Urban Indonesia	5.55	4.93	3.77	4.03	3.56	2.93	5.08	2.47	1.58	2.12	-0.56	(3.7)
Rural Indonesia	4.16	7.51	6.79	8.13	9.38	10.11	10.72	10.45	13.05	15.18	0.69	(7.4)
Birth Control												
All Indonesia	0.06	0.15	0.29	0.44	0.46	0.25	1.17	1.2	1.02	2.09	1.67	(6.0)
Urban Indonesia	0.02	0.36	0.43	1.6	2.07	1.81	1.29	0.9	2.37	3.7	1.98	(3.5)
Rural Indonesia	0.04	0.21	0.06	0.43	0.54	0.47	0.28	0.52	1.08	0.71	1.65	(3.4)
Traditional Healers												
All Indonesia	2.79	2.58	3.05	4.89	4.68	3.99	4.58	3.88	3.38	5.5	0.28	(2.4)
Urban Indonesia	2.25	7.98	3.68	4.36	1.96	1.51	3.32	3.06	5.84	2.16	-0.14	(0.5)
Rural Indonesia	3.08	2.75	2.79	2.88	5.11	3.66	4.35	4.8	4.75	6.36	0.51	(4.6)
Doctor Prescribed Drugs												
All Indonesia	1.09	1.76	3.35	3.23	5.74	7.41	16.91	24.34	40.27	98.42	2.40	(16.3)
Urban Indonesia	5.95	8.17	14.76	38.8	36.43	35.19	42.59	68.48	82.5	161.97	1.66	(9.6)
Rural Indonesia	1.13	0.97	2.66	2.5	2.08	5.34	4.72	9.4	14.26	49.85	2.37	(11.4)
Non Doctor Prescribed Drugs												
All Indonesia	3.98	5.53	6.98	8.5	8.52	12.21	12.96	13.77	16.56	24.95	0.90	(12.8)
Urban Indonesia	9.66	8.94	15.73	12.48	14.46	15.32	16.96	18.11	26.02	30.68	0.61	(8.1)
Rural Indonesia	3.38	5.1	5.95	7.41	7.72	8.59	10.87	12.68	12.95	18.9	1.00	(12.9)
Other Health Goods/Services												
All Indonesia	1.47	2.04	2.31	3.22	3.55	3.79	5.16	6.66	5.9	13.02	1.07	(15.2)
Urban Indonesia	3.61	4.16	4.97	8.11	8.41	5.63	7.09	5.0	9.77	26.36	0.81	(4.5)
Rural Indonesia	1.61	1.38	2.14	2.74	2.95	2.69	4.27	3.7	5.45	6.7	0.96	(8.3)
Total												
All Indonesia	16.95	26.71	37.32	40.85	44.96	53.61	76.33	103.11	139.31	309.74	1.43	(34.9)
Urban Indonesia	40.57	47.95	66.5	107.03	118.14	108.95	132.57	174.66	299.48	447.9	1.25	(14.7)
Rural Indonesia	16.03	22.17	28.64	39.72	39.5	45.18	49.41	62.71	89.03	195.9	1.43	(27.3)

Source: 1987 SUSENAS data tapes.

TABLE 12: PUBLIC SCHOOL STUDENTS AS PERCENTAGE OF ALL STUDENTS

Education Level	Public (%) 1978	1987
Primary school	88	94
Lower secondary	51	62
Upper secondary	54	47
University & other	54	42

Source: Meesook, 1984, MOEC, 1987 and BPS, 1989.

TABLE 13: GOVERNMENT SUBSIDIES ON EDUCATION, INDONESIA IN 1988/89

	Recurrent Budget 1988/89 (mill Rp)[1/]	Public Students 1988/89[2/]	Fees 1988/89 (mill Rp)[3/]	Subsidy Per Student
Primary	1,718,411	24,813,810	-	69,300
Lower Secondary	353,985	3,680,701	74,750	75,900
Upper Secondary	285,305	1,583,099	56,810	144,300
Tertiary	240,032	553,772	55,230	333,700

Source: 1/ World Bank staff estimates.
2/ MOEC, 1990. Tertiary public students are for 1989/90.
3/ Bureau of Finance, MOEC.

TABLE 14: INCIDENCE OF PUBLIC SUBSIDIES TO EDUCATION, INDONESIA IN 1987
(Rp per capita per month)

	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Average
All Indonesia											
Primary school	1076.11	1109.21	1037.25	1033.48	877.92	863.04	814.63	766.62	711.26	613.51	890.30
Lower secondary	274.89	311.82	337.24	344.87	150.10	153.34	150.96	156.56	160.05	156.61	219.64
Upper secondary	132.39	165.40	233.82	266.22	113.84	137.36	149.69	193.97	219.32	247.32	185.93
University	36.87	98.11	120.88	150.59	65.19	93.53	114.16	173.90	294.05	540.38	168.77
Total subsidy	1520.27	1684.54	1729.19	1795.16	1207.05	1247.28	1229.43	1291.06	1384.67	1557.82	1464.65
Total subsidy as a percentage of per capita household expenditure	18.99	15.86	13.92	12.63	7.47	6.74	5.73	5.01	4.20	2.56	
Urban Indonesia											
Primary school	1066.39	985.35	1033.39	943.42	799.60	766.10	731.45	709.79	632.65	544.18	821.23
Lower secondary	407.56	421.41	451.67	418.30	160.17	157.23	149.33	144.56	153.53	123.12	258.69
Upper secondary	316.20	475.62	615.31	620.92	174.49	178.82	177.92	186.33	182.98	179.00	310.76
University	193.89	295.28	484.14	513.57	220.41	278.17	338.04	413.22	483.35	687.64	390.77
Total subsidy	1984.04	2177.66	2584.52	2496.20	1354.68	1380.32	1396.74	1453.91	1452.51	1533.93	1781.45
Total subsidy as a percentage of per capita household expenditure	17.45	14.05	13.76	11.40	5.38	4.79	4.18	3.68	2.94	1.74	
Rural Indonesia											
Primary school	1059.06	1109.27	1064.40	1068.61	911.55	879.40	855.91	800.75	763.24	649.86	916.20
Lower secondary	262.54	296.37	319.63	331.99	131.79	146.66	134.75	140.94	141.90	143.48	205.01
Upper secondary	119.80	149.70	182.85	230.14	76.36	93.06	104.87	111.35	146.44	176.71	139.13
University	33.12	51.53	119.13	112.68	46.47	42.55	61.78	70.50	102.08	215.33	85.52
Total subsidy	1474.52	1606.87	1686.01	1743.42	1166.17	1161.66	1157.31	1123.54	1153.66	1185.38	1345.85
Total subsidy as a percentage of per capita household expenditure	19.41	16.22	14.75	13.56	8.11	7.23	6.39	5.39	4.54	2.78	

Source: Author's calculations from 1987 SUSENAS data tapes.

TABLE 15: HOUSEHOLD EDUCATION ACCOUNT, INDONESIA IN 1987 (RP PER CAPITA PER MONTH)

Deciles of persons ranked by total household consumption per capita

	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Average
ALL INDONESIA											
Total per capita expenditure on education of which:	1635.70	1861.88	1952.76	2081.44	1546.44	1655.84	1744.23	1964.35	2420.97	3786.22	2064.98
Spent by household directly	115.43	177.34	223.57	286.28	339.39	408.56	514.80	673.29	1036.30	2228.40	600.34
Expenditure per student	(476.7)	(685.6)	(870.9)	(1096.7)	(1287.5)	(1509.3)	(1938.9)	(2444.6)	(3641.8)	(7519.9)	(2147.2)
Students per person (%)	(24.2)	(25.9)	(25.7)	(26.1)	(26.4)	(27.1)	(26.6)	(27.5)	(28.5)	(29.6)	(26.8)
Subsidy from government	1520.27	1684.54	1729.19	1795.16	1207.05	1247.28	1229.43	1291.06	1384.67	1557.82	1464.65
Mean total consumption per capita	(8007)	(10621)	(12421)	(14212)	(16160)	(18501)	(21460)	(25764)	(32997)	(60757)	(22090)
URBAN INDONESIA											
Total per capita expenditure on education of which:	2312.87	2663.60	3276.40	3272.75	2284.88	2495.00	2658.92	3138.02	3296.21	5295.46	3069.41
Spent by household directly	328.83	485.94	691.88	776.55	930.20	1114.68	1262.18	1684.11	1843.70	3761.53	1287.96
Expenditure per student	(1164.6)	(1690.7)	(2169.4)	(2591.9)	(2964.6)	(3547.2)	(4062.3)	(5326.8)	(5907.3)	(12373.7)	(4179.9)
Students per person (%)	(28.2)	(28.7)	(31.9)	(30.0)	(31.4)	(31.4)	(31.1)	(31.6)	(31.2)	(30.4)	(30.6)
Subsidy from government	1984.04	2177.66	2584.52	2496.20	1354.68	1380.32	1396.74	1453.91	1452.51	1533.93	1781.45
Mean total consumption per capita	(11372)	(15503)	(18785)	(21903)	(25194)	(28803)	(33383)	(39522)	(49378)	(88144)	(33199)
RURAL INDONESIA											
Total per capita expenditure on education of which:	1580.99	1751.81	1874.92	1964.26	1432.45	1462.80	1478.25	1493.77	1641.21	2202.81	1688.33
Spent by household directly	106.47	144.94	188.91	220.84	266.28	301.14	320.94	370.23	487.55	1017.43	342.47
Expenditure per student	(451.1)	(572.3)	(742.8)	(847.0)	(1045.7)	(1165.9)	(1261.5)	(1487.5)	(1911.7)	(3992.2)	(1347.8)
Students per person (%)	(23.6)	(25.3)	(25.4)	(26.1)	(25.5)	(25.8)	(25.4)	(24.9)	(25.5)	(25.5)	(25.3)
Subsidy from government	1474.52	1606.87	1686.01	1743.42	1166.17	1161.66	1157.31	1123.54	1153.66	1185.38	1345.85
Mean total consumption per capita	(7595)	(9909)	(11432)	(12860)	(14373)	(16065)	(18123)	(20841)	(25429)	(42614)	(17924)

Source: Author's calculations from 1987 SUSENAS data tapes.

TABLE 16: PERCENTAGE SHARES OF GOVERNMENT EDUCATION SUBSIDIES BY HOUSEHOLD EXPENDITURE QUANTILE, INDONESIA IN 1987 AND 1978

Level of schooling	Household expenditure Quantile	1978	1987
Primary	Lower 40%	51	48
	Middle 30%	27	29
	Upper 30%	22	23
Junior Secondary	Lower 40%	45	58
	Middle 30%	21	21
	Upper 30%	33	22
Senior Secondary	Lower 40%	22	43
	Middle 30%	23	22
	Upper 30%	55	36
University	Lower 40%	7	24
	Middle 30%	10	16
	Upper 30%	83	60
All Levels	Lower 40%	46	46
	Middle 30%	25	25
	Upper 30%	29	29

Source: Author's calculations from 1987 SUSENAS data tapes and O.A.Meesook, 1984.

Note : All students in the lowest economic class are assumed to go to public schools; The proportions of public students for the middle and upper economic classes are assumed to be the same

TABLE 17: THE USE OF PUBLIC HOSPITALS, INDONESIA IN 1990

Deciles of persons ranked by total household consumption per capita

	1	2	3	4	5	6	7	8	9	10	Total
ALL INDONESIA											
Public as a proportion of total hospital visits (%)											
All visits	68.72	76.60	67.76	69.70	64.41	55.17	62.20	64.57	63.99	53.65	61.16
Inpatient visits	57.87	78.80	67.22	82.92	77.74	73.94	66.57	71.91	67.00	52.82	65.83
URBAN INDONESIA											
Public as a proportion of total hospital visits (%)											
All visits	62.45	49.20	56.10	50.54	59.98	62.58	49.79	64.16	56.74	39.47	54.38
Inpatient visits	75.48	83.40	79.93	63.74	64.78	69.25	55.59	60.80	52.31	45.61	59.36
RURAL INDONESIA											
Public as a proportion of total hospital visits (%)											
All visits	56.99	80.69	68.94	72.88	69.35	75.59	67.39	57.16	77.22	68.06	69.58
Inpatient visits	68.47	53.48	75.04	65.32	82.51	82.37	71.90	67.38	74.80	68.88	71.67

Source: 1990 SUSENAS data tapes.

TABLE 18: INCIDENCE OF PUBLIC SUBSIDIES TO HOSPITALS AND PRIMARY HEALTH CENTERS
(Rp per capita per month)

	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Average
All Indonesia											
Hospital subsidy	21.79	34.67	28.30	50.57	60.20	57.98	98.58	93.86	105.48	135.33	68.68
Public health center subsidy	32.06	38.77	36.20	39.46	37.38	43.48	44.96	48.61	42.26	24.86	38.8
Total per capita subsidy	53.85	73.44	64.50	90.03	97.58	101.46	143.54	142.47	147.73	160.19	107.48
Subsidy as a percentage of household per capita expenditures	0.67	0.69	0.52	0.63	0.60	0.55	0.67	0.55	0.45	0.26	0.49
Urban Indonesia											
Hospital subsidy	72.89	52.31	116.02	126.49	120.61	109.02	75.58	139.36	137.86	151.27	110.14
Public health center subsidy	34.84	44.70	37.82	38.07	36.02	41.14	30.31	24.96	18.04	12.21	31.81
Total per capita subsidy	107.73	97.02	153.84	164.56	156.63	150.16	105.89	164.33	155.90	163.48	141.95
Subsidy as a percentage of household per capita expenditures	0.95	0.63	0.82	0.75	0.62	0.52	0.32	0.42	0.32	0.19	0.43
Rural Indonesia											
Hospital subsidy	19.61	23.84	28.71	32.73	50.01	66.53	45.52	67.00	83.16	117.99	53.51
Public health center subsidy	31.46	39.61	35.05	38.29	37.77	37.11	45.36	45.82	55.64	48.16	41.43
Total per capita subsidy	51.08	63.45	63.75	71.01	87.78	103.64	90.88	112.82	138.80	166.15	94.94
Subsidy as a percentage of household per capita expenditures	0.67	0.64	0.56	0.55	0.61	0.65	0.50	0.54	0.55	0.39	0.53

Source: Author's calculations from 1987 SUSENAS data tapes.

TABLE 19: HOUSEHOLD HEALTH ACCOUNT, INDONESIA IN 1987 (RP PER CAPITA PER MONTH)

Deciles of persons ranked by total household consumption per capita

	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Average
ALL INDONESIA											
Total per capita expenditure on health care of which :	70.81	100.15	101.82	130.88	142.54	155.07	219.87	245.58	287.04	469.93	192.37
Spent by household directly	16.96	26.71	37.32	40.85	44.96	53.61	76.33	103.11	139.31	309.74	84.89
Subsidy from government	53.85	73.44	64.50	90.03	97.58	101.46	143.54	142.47	147.73	160.19	107.48
Mean total consumption per capita	(8007)	(10621)	(12421)	(14212)	(16160)	(18501)	(21460)	(25764)	(32997)	(60757)	(22090)
URBAN INDONESIA											
Total per capita expenditure on health care of which :	148.30	144.97	220.34	271.59	274.77	259.11	238.46	338.99	455.38	611.39	296.33
Spent by household directly	40.57	47.95	66.50	107.03	118.14	108.95	132.57	174.66	299.48	447.90	154.38
Subsidy from government	107.73	97.02	153.84	164.56	156.63	150.16	105.89	164.33	155.90	163.48	141.95
Mean total consumption per capita	(11372)	(15503)	(18785)	(21903)	(25194)	(28803)	(33383)	(39522)	(49378)	(88144)	(33199)
RURAL INDONESIA											
Total per capita expenditure on health care of which :	67.12	85.62	92.39	110.73	127.28	148.82	140.29	175.53	227.83	362.05	153.77
Spent by household directly	16.04	22.17	28.64	39.72	39.5	45.18	49.41	62.71	89.03	195.90	58.83
Subsidy from government	51.08	63.45	63.75	71.01	87.78	103.64	90.88	112.82	138.80	166.15	94.94
Mean total consumption per capita	(7595)	(9909)	(11432)	(12860)	(14373)	(16065)	(18123)	(20841)	(25429)	(42614)	(17924)

Source: Author's calculations from 1987 SUSENAS data tapes.

TABLE 20: MONTHLY HOUSEHOLD PER CAPITA EXPENDITURE ON HEALTH CARE IN 1987 (RP PER CAPITA PER MONTH)

Deciles of persons ranked by total household consumption per capita

	1	2	3	4	5	6	7	8	9	10
All Indonesia										
Expenditure per treatment	130.05	173.29	249.41	241.61	260.65	276.09	354.35	470.73	605.99	1564.38
Treatment per illness	0.54	0.58	0.57	0.62	0.62	0.65	0.70	0.71	0.74	0.77
Illness per person	0.24	0.27	0.26	0.28	0.28	0.30	0.31	0.31	0.31	0.26
Expenditure per person	16.96	26.71	37.32	40.85	44.96	53.61	76.33	103.11	139.31	309.74
Urban Indonesia										
Expenditure per treatment	262.11	222.59	364.37	523.51	681.62	596.51	693.90	963.45	1807.02	2434.39
Treatment per illness	0.59	0.66	0.70	0.76	0.71	0.72	0.77	0.76	0.75	0.82
Illness per person	0.26	0.33	0.26	0.27	0.24	0.25	0.25	0.24	0.22	0.23
Expenditure per person	40.57	47.95	66.50	107.03	118.14	108.95	132.57	174.66	299.48	447.90
Rural Indonesia										
Expenditure per treatment	124.37	141.98	206.85	249.12	247.35	271.73	256.06	296.87	355.09	733.28
Treatment per illness	0.54	0.56	0.57	0.60	0.60	0.62	0.62	0.67	0.71	0.74
Illness per person	0.24	0.28	0.24	0.27	0.27	0.27	0.31	0.32	0.35	0.36
Expenditure per person	16.04	22.17	28.64	39.72	39.50	45.18	49.41	62.71	89.03	195.90

Source: 1987 SUSENAS data tapes.

TABLE 21: PERCENTAGE SHARES OF GOVERNMENT HEALTH SUBSIDIES BY HOUSEHOLD EXPENDITURE QUANTILE, AREA AND REGION, INDONESIA IN 1978 AND 1987

Household Economic Quantile		Java			Outer Islands			Indonesia		
		Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Lower 40%	1987	11	7	18	4	9	13	15	16	31
	1978	(1)	(14)	(15)	(0)	(4)	(4)	(1)	(18)	(19)
Middle 30%	1987	8	9	17	4	8	12	12	17	30
	1978	(3)	(21)	(25)	(2)	(9)	(11)	(5)	(31)	(36)
Upper 30%	1987	9	14	23	4	12	16	14	25	39
	1978	(12)	(15)	(27)	(4)	(14)	(18)	(16)	(29)	(45)
Total	1987	29	30	59	13	29	41	41	59	100
	1978	(16)	(50)	(67)	(6)	(27)	(33)	(23)	(77)	(100)
Percentage share of population	1987	20	42	62	8	30	38	27	73	100
	1978	(12)	(52)	(64)	(7)	(29)	(36)	(19)	(81)	(100)

Source: 1987 SUSENAS data tapes and Meesook, 1984.

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